CHNOLOGY DEPT.

Gas Journal

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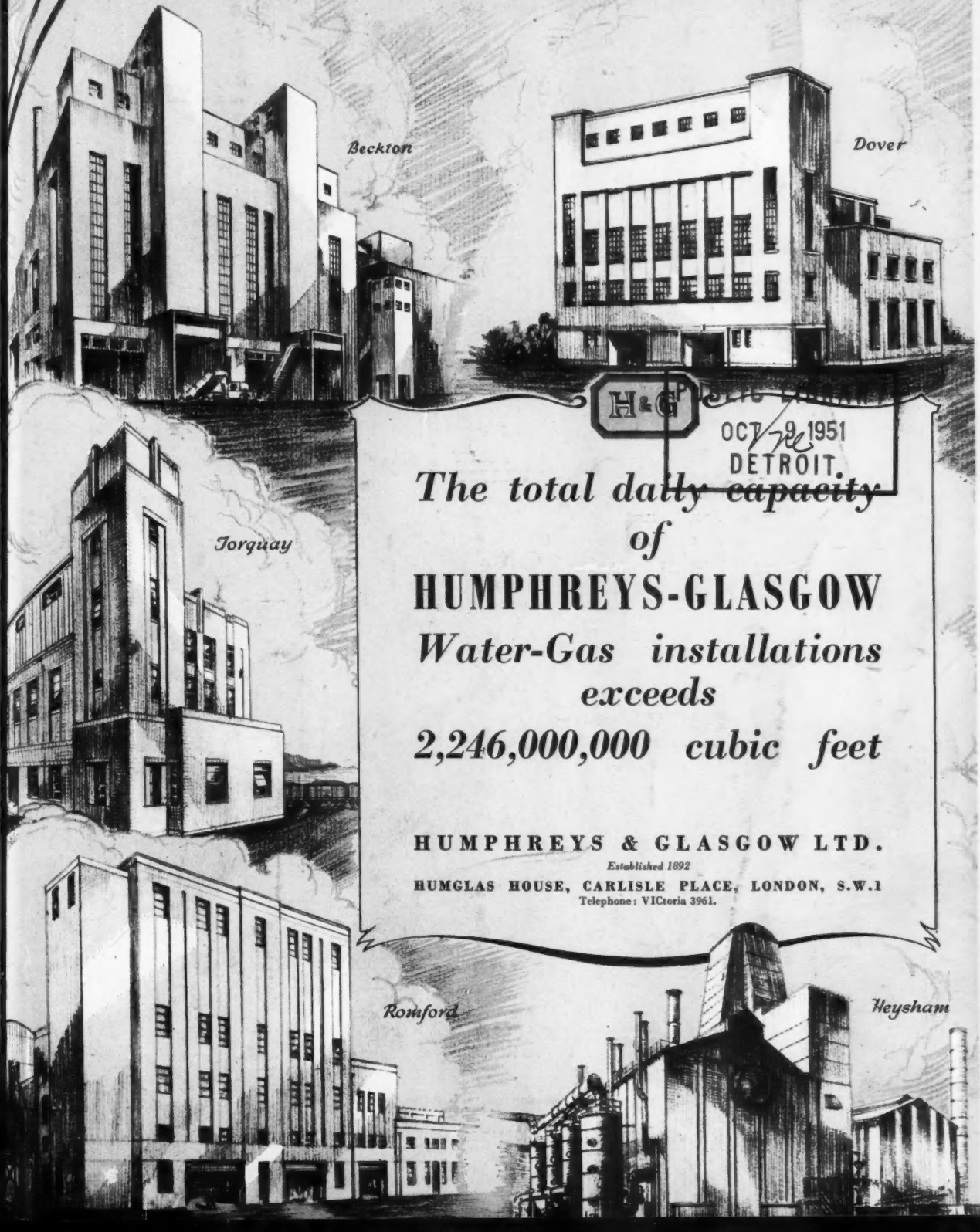

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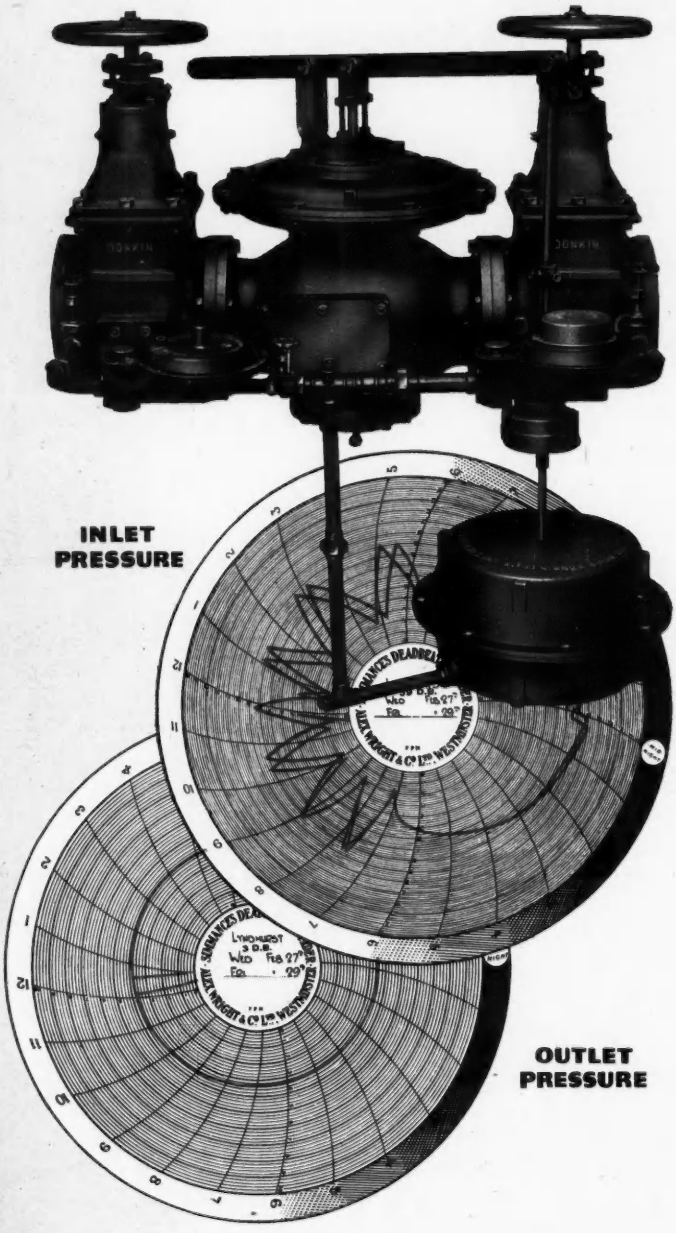

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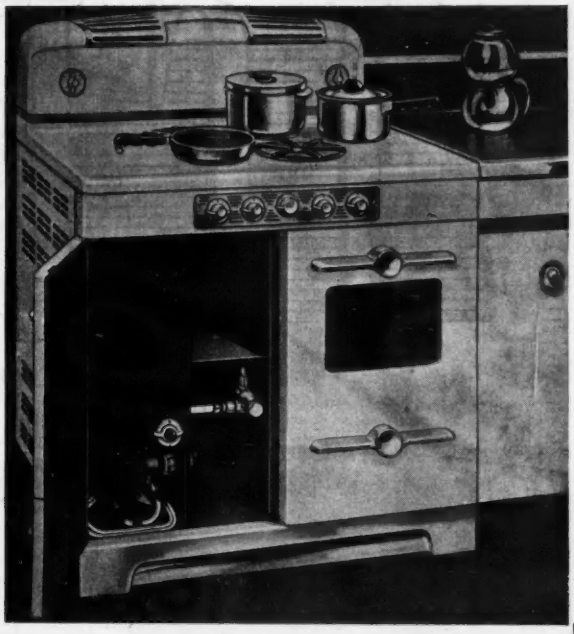

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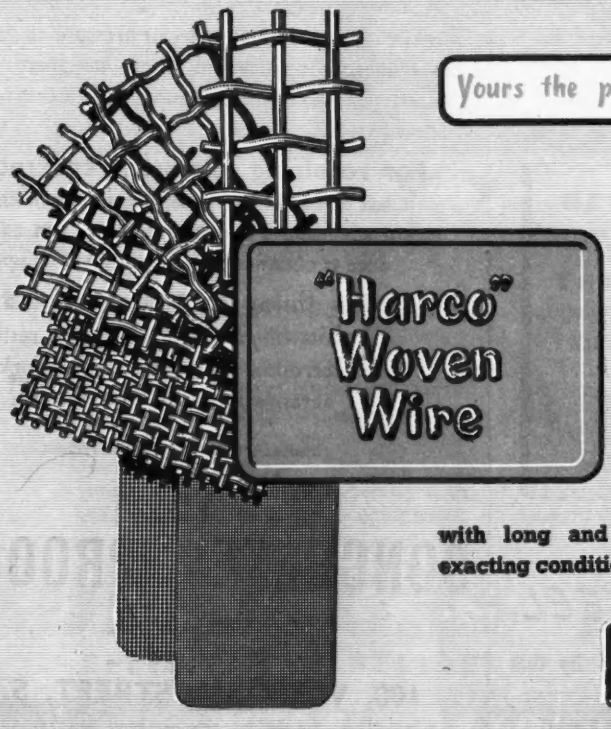

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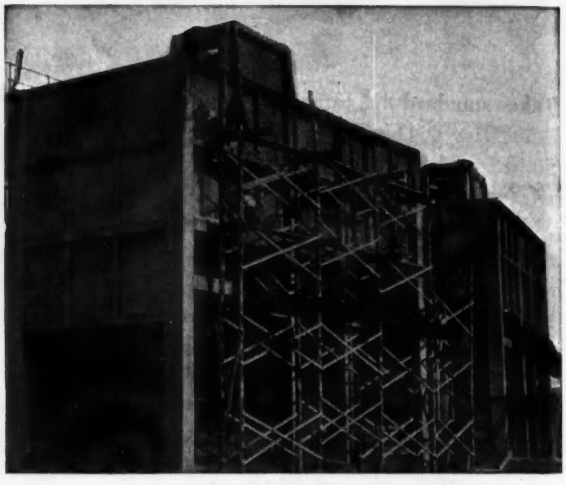

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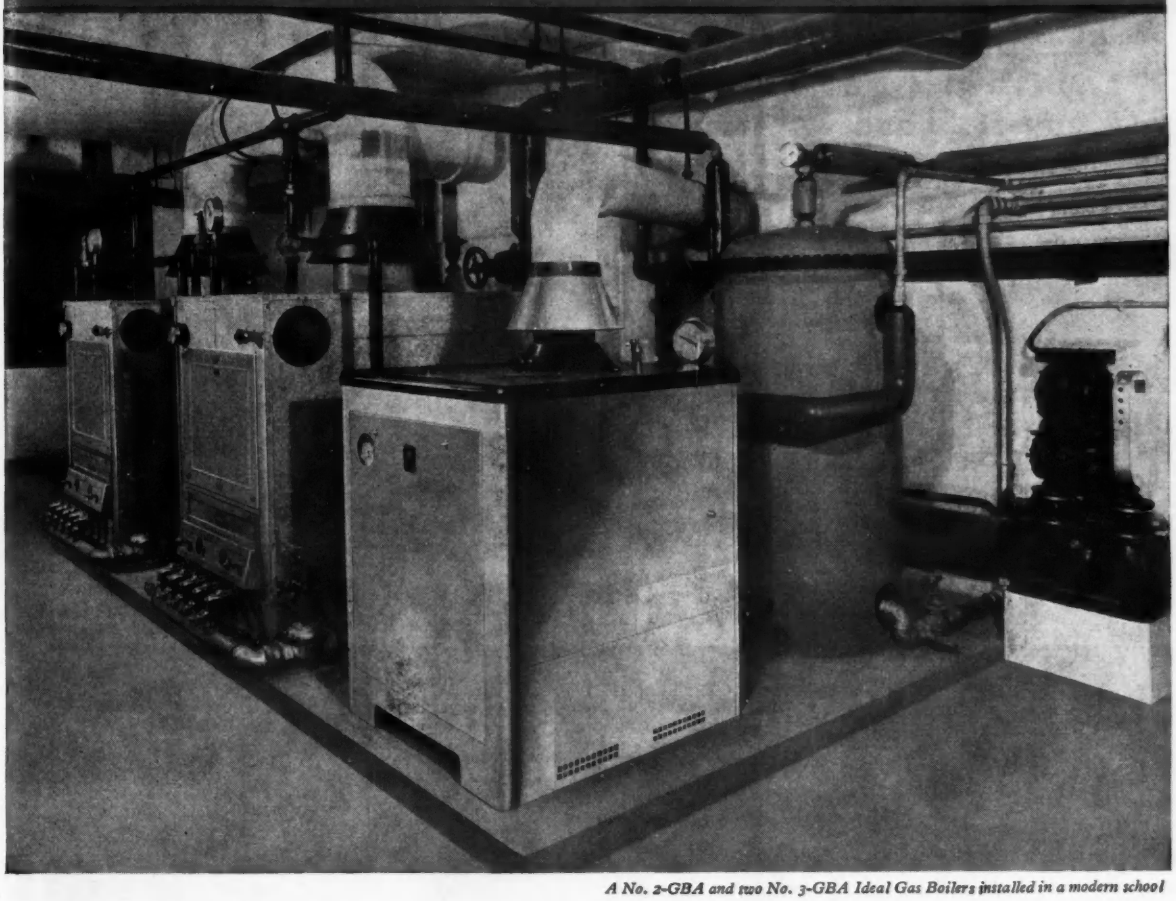

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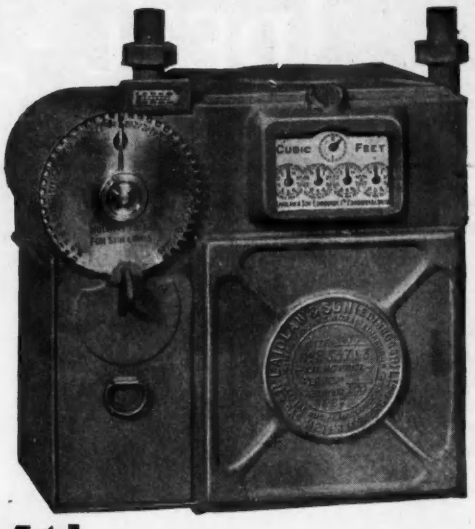

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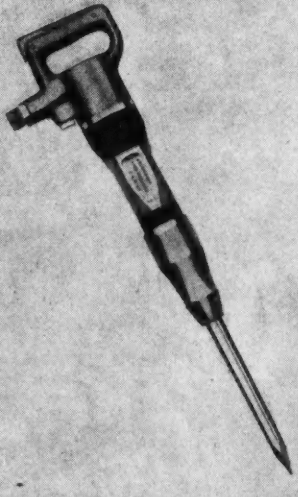

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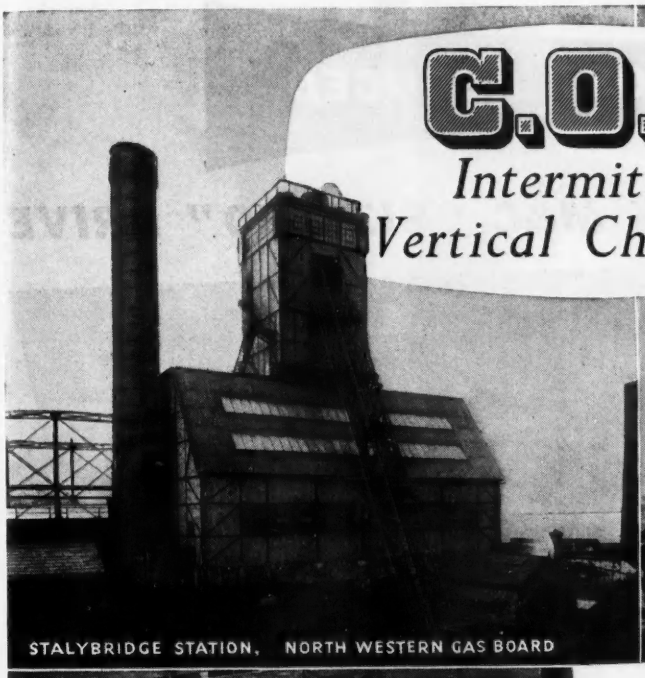

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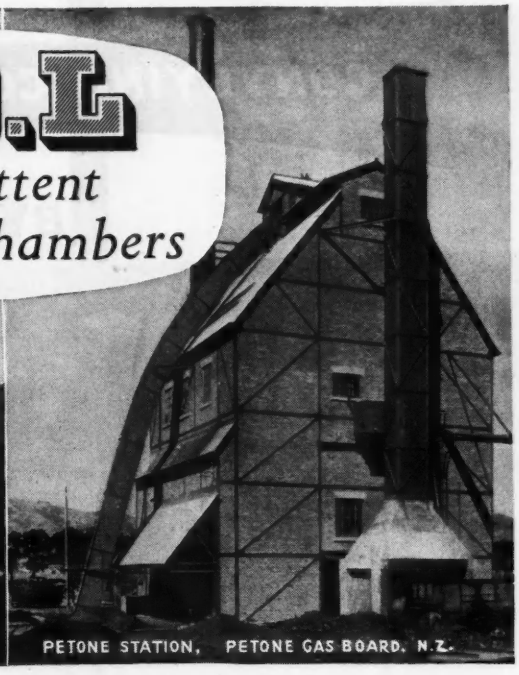

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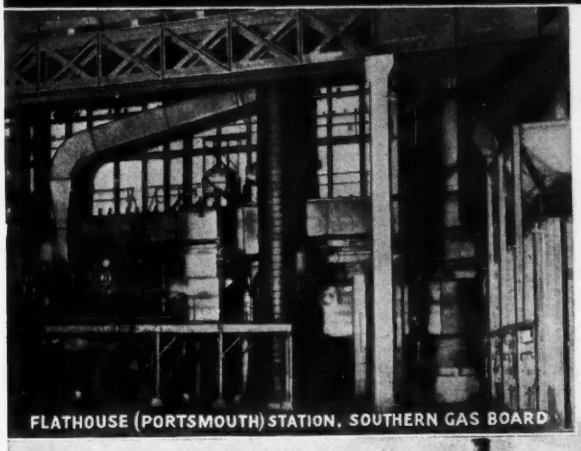

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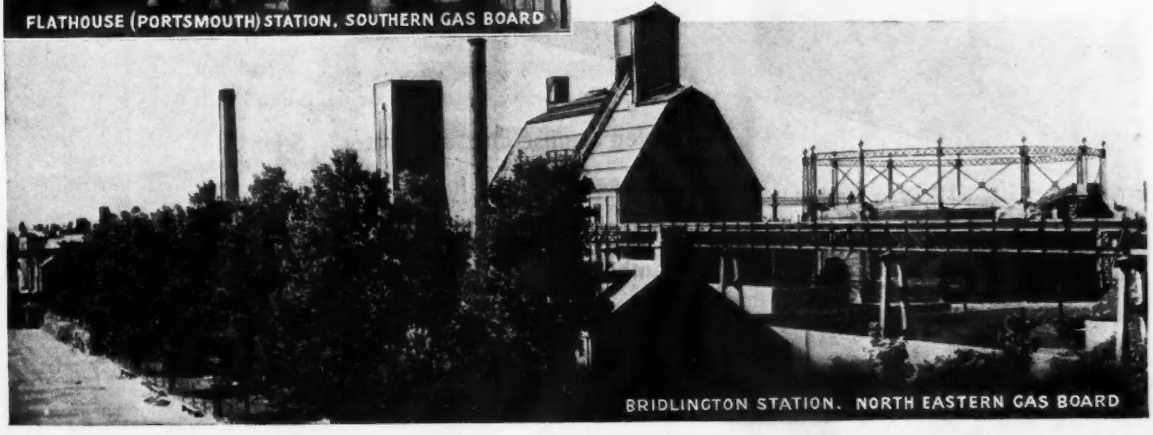

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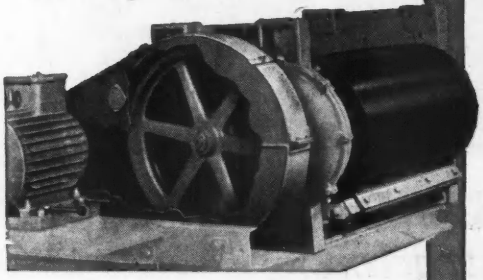

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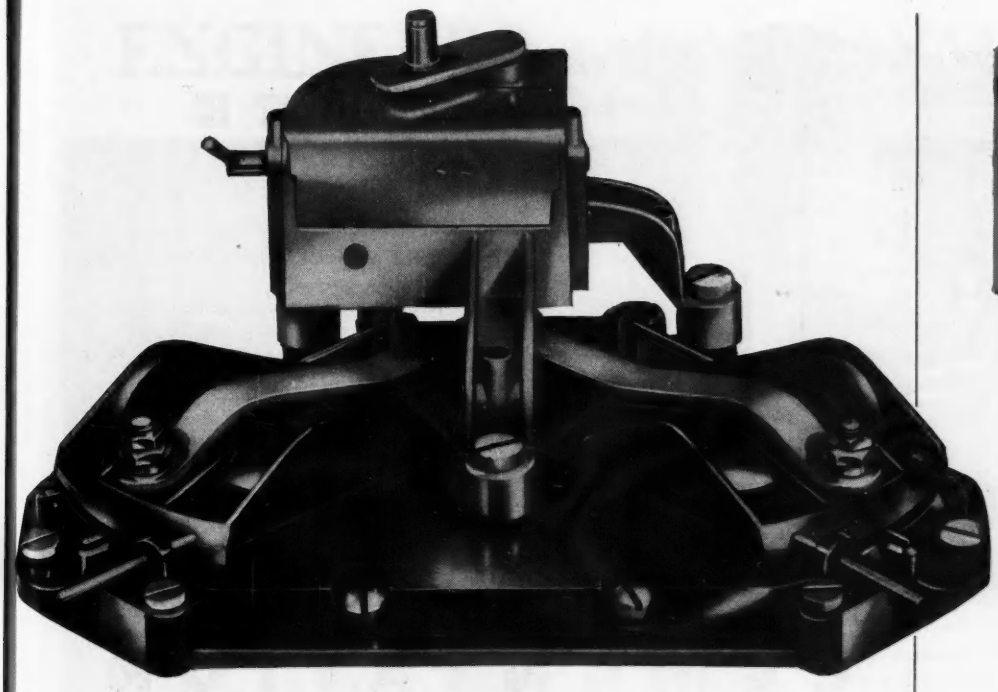

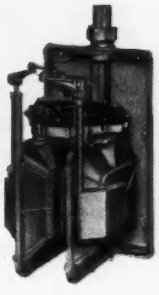

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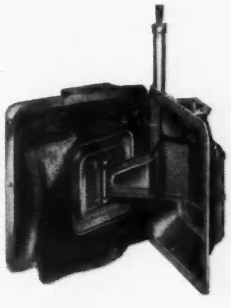

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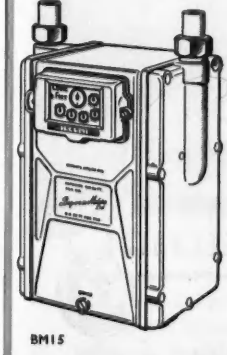

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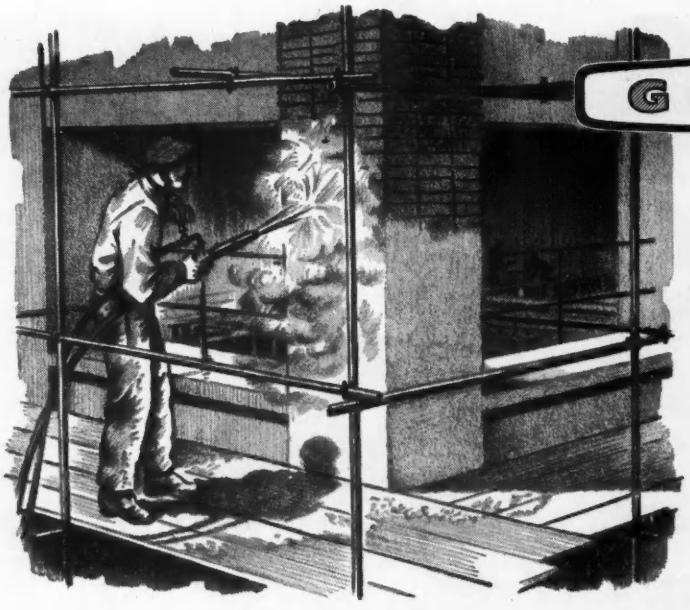

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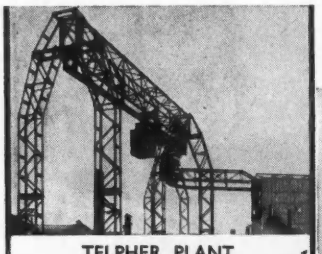

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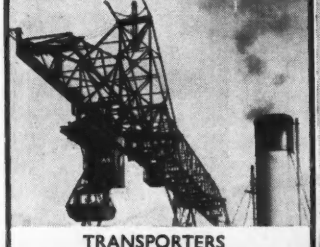

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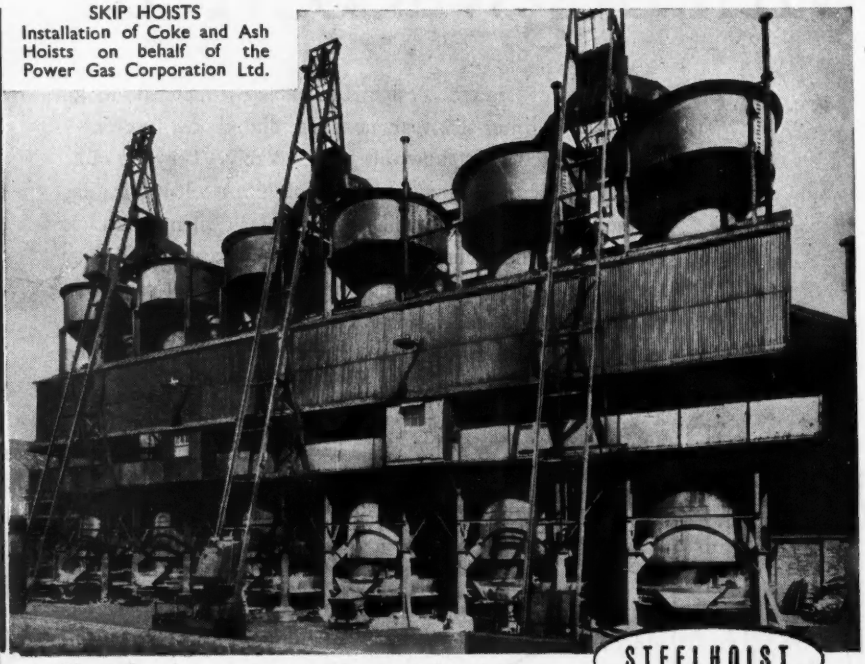

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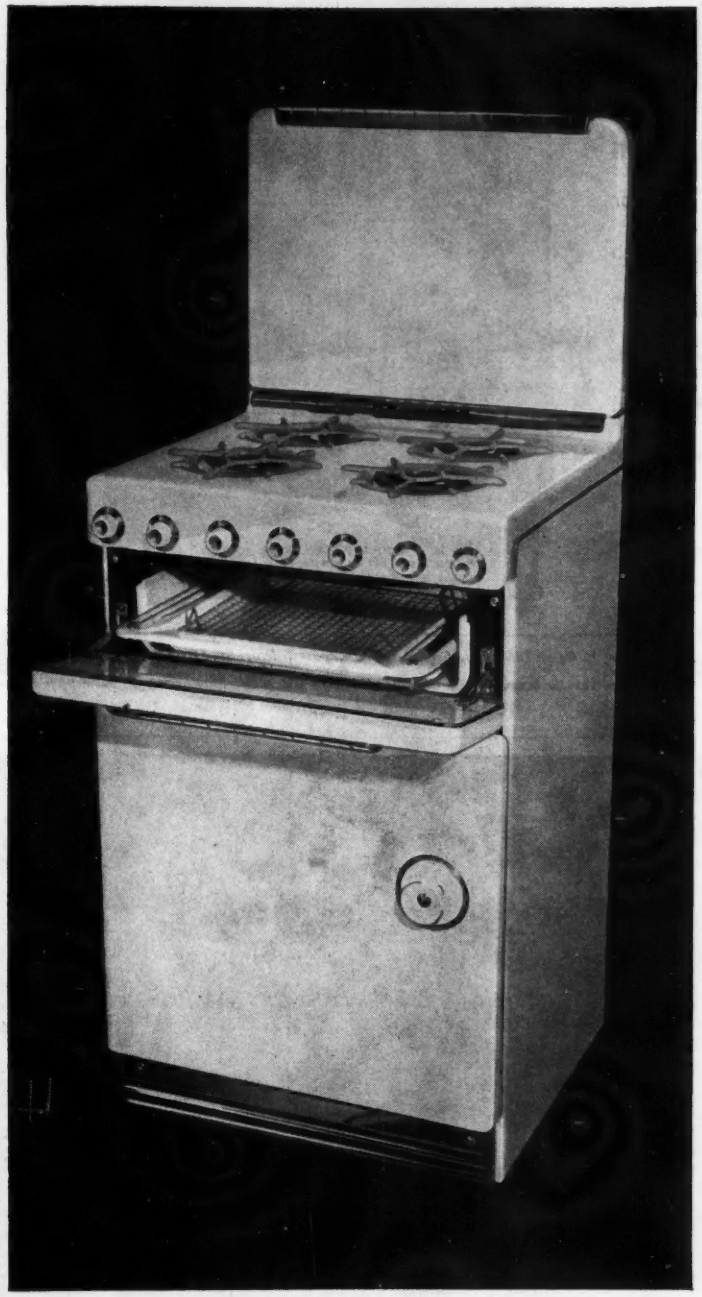

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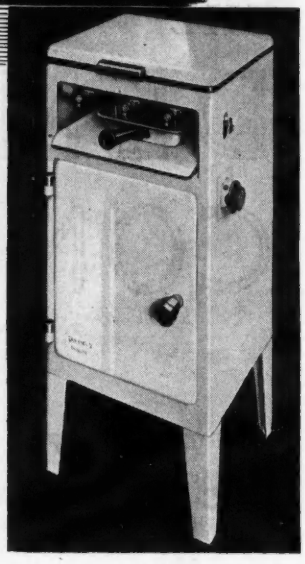

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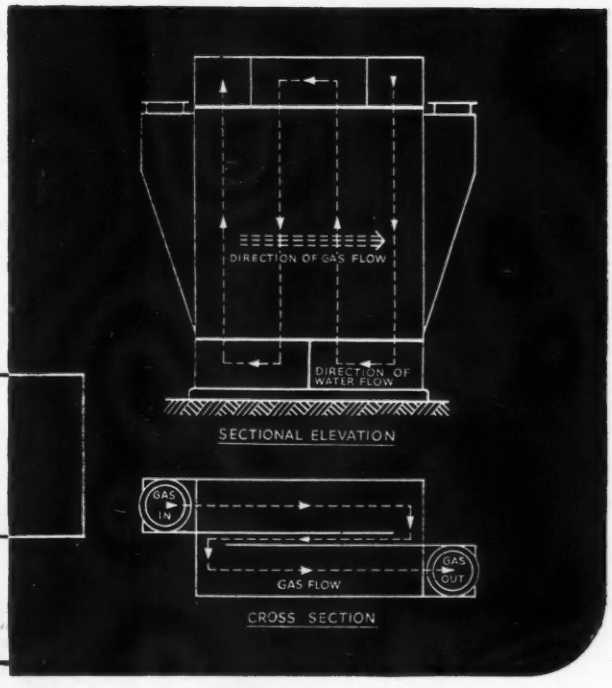

Diagrammatic arrangement of a Whessoe vertical tube horizontal gas flow condenser.

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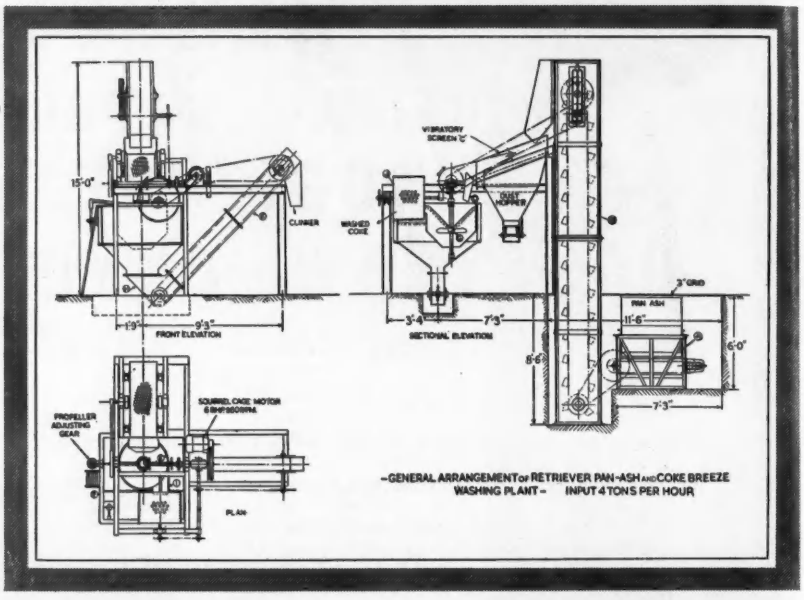

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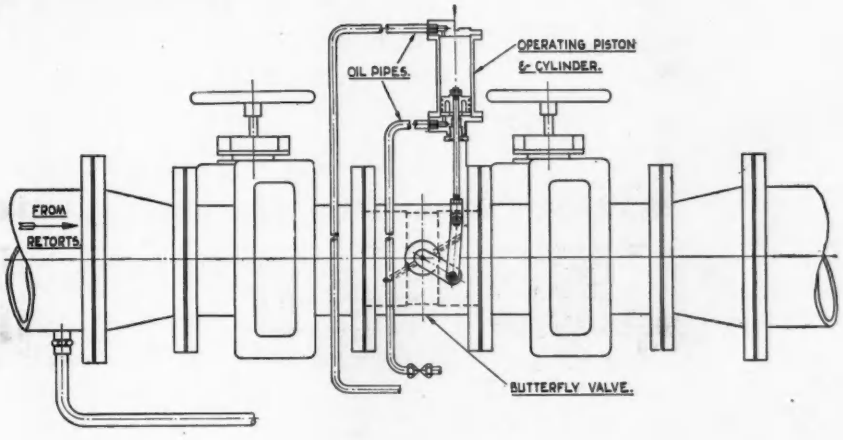

THE BVR RETORT HOUSE GOVERNOR FIGURE 81

The initials in the title of this governor stand for Butterfly Valve Relay, which are the main component parts of this simple but very effective piece of apparatus.

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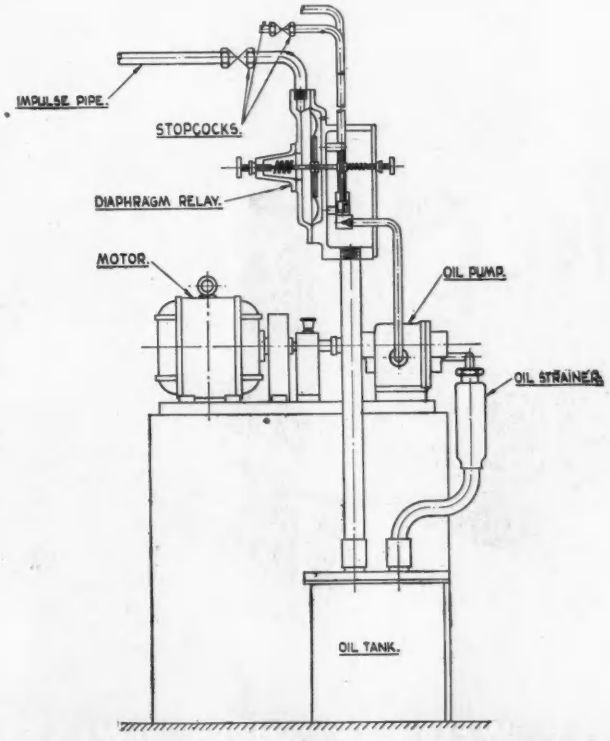

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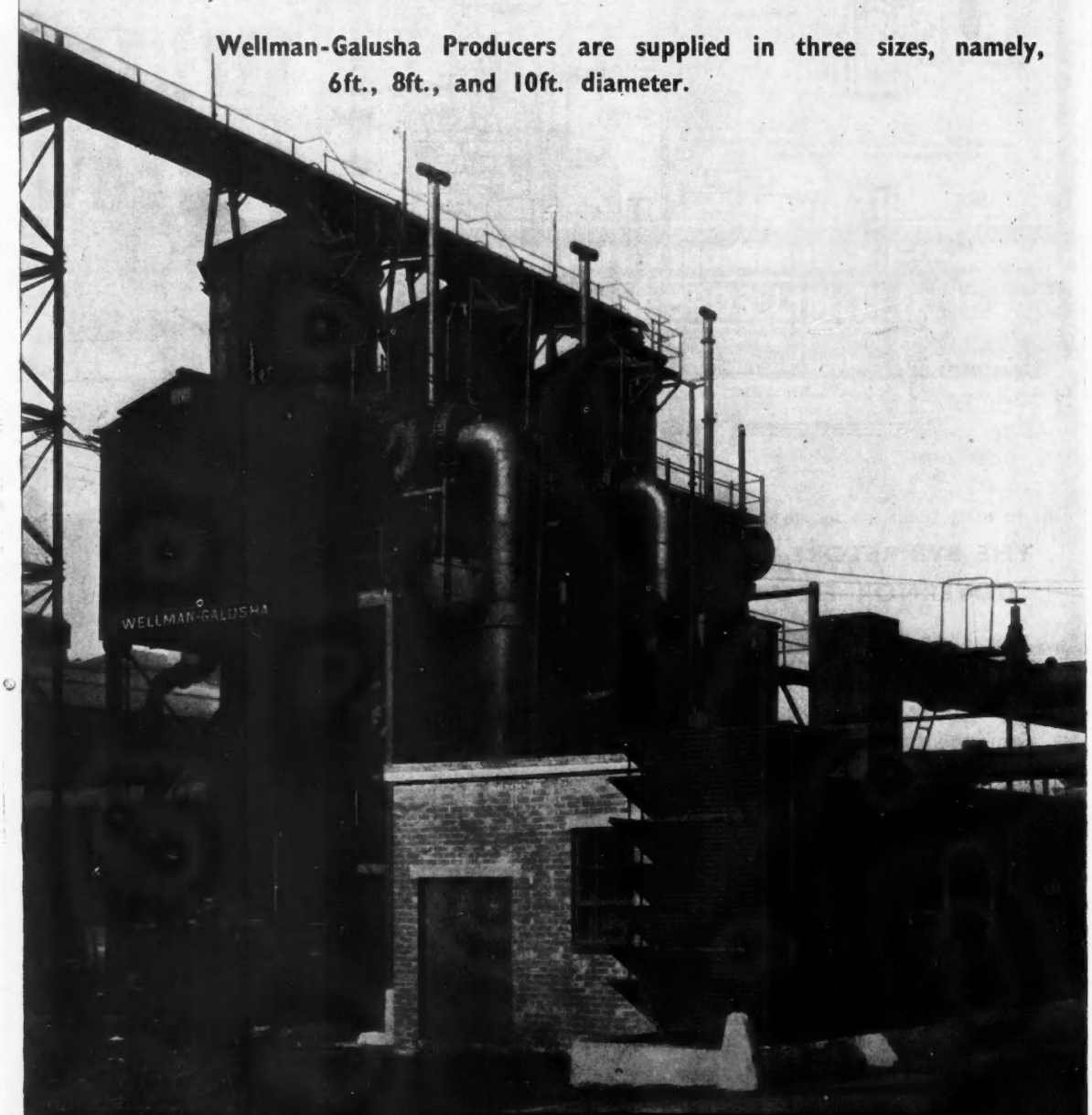

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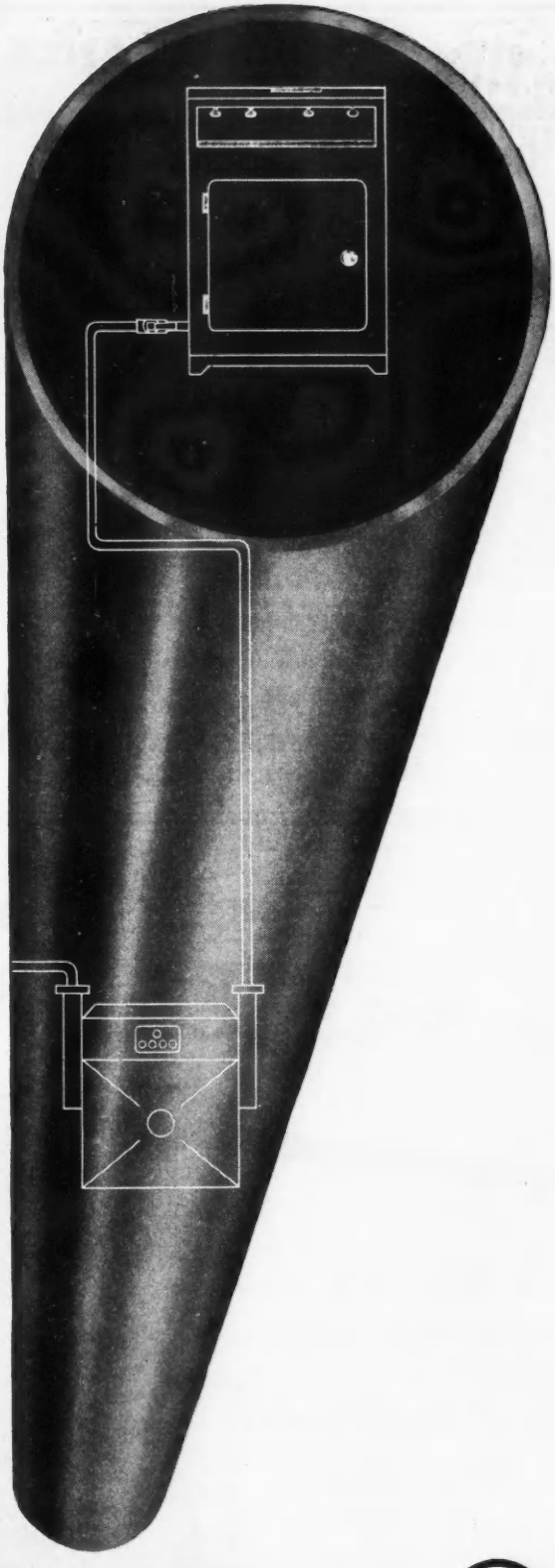

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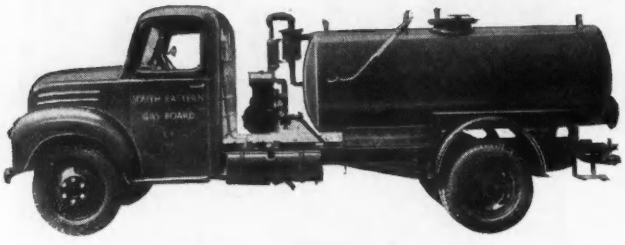
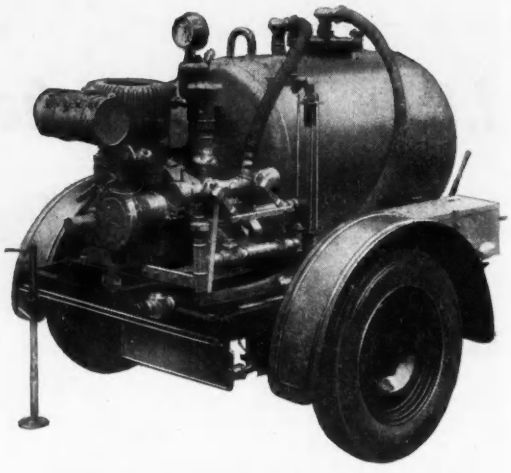


SYPHON EMPTYING OUTFIT

The vacuum syphon emptying outfit illustrated is mounted on a 4-ton Fordson chassis. A 600 gallon galvanised tank is fitted. A rotary type exhauster is driven by a 2½ h.p. four-stroke hopper cooled engine, mounted on a sub-frame behind the cab. The tank is fitted with a flame-proof vent and the outfit can be used for high or low pressure syphon emptying. A large manhole at the rear allows the tank to be cleaned easily.

A sight glass is fitted to enable the operator to know when the syphon is emptied. Twenty-five feet of 2½ in. suction hose is supplied with the outfit. The outfit can be used for vacuum or pressure working.



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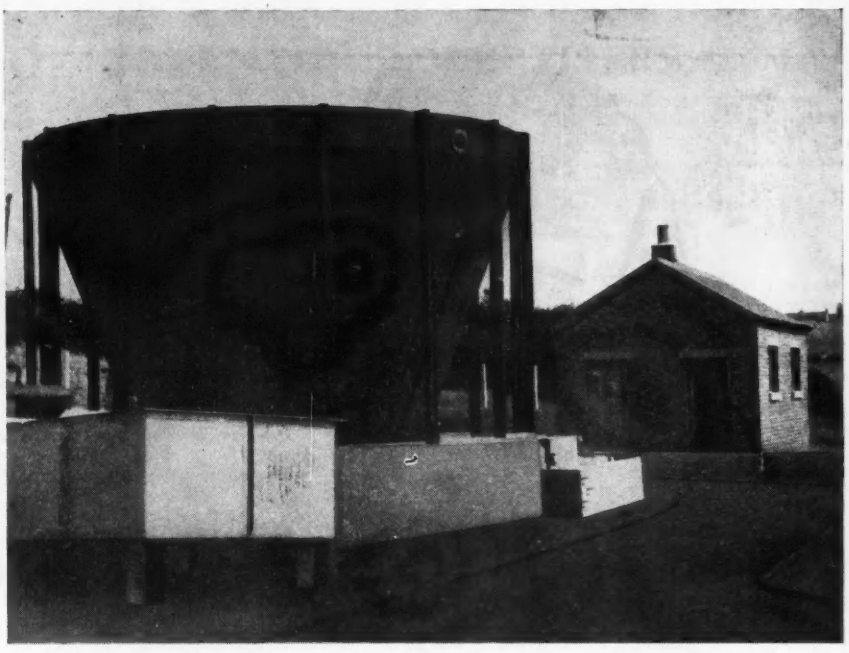

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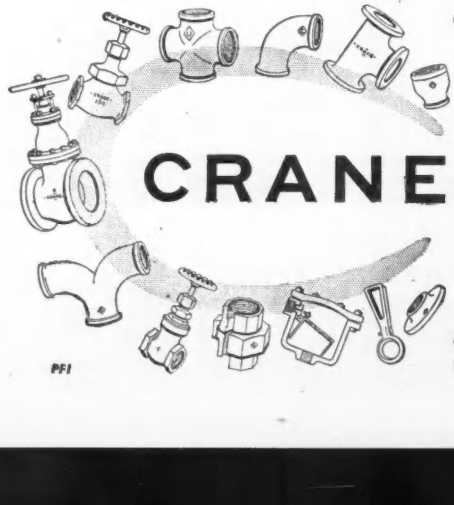

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INDEX TO 'JOURNAL' ADVERTISERS

PAGE

A

A.C.E. Machinery, Ltd. ... ...
Abbott, Birks & Co., Ltd. 723
Accurate Recording Instrument Co. ... ...
Acme Wringers, Ltd. ... ...
Aerogen Co., Ltd. ... ...
Alder & Mackay, Ltd. S1
Allan Taylor (Engineers) Ltd. 742
Armco, Ltd.... ... ...
Armco, Ltd., (Bundy Tubing Division) 721
Ascot Gas Water Heaters, Ltd. ... .
Ascot Gas Water Heaters, Ltd. (F.A. Neat) ...
Ashmore, Benson, Pease & Co. ... ...
Aspinall's (Paints), Ltd. ... ...
Associated Lead Manufacturers, Ltd. ... ...
Associated Lead Manufacturers, Ltd. (Rustodian)
Automatic Telephone & Electric Co., Ltd. ...
Automotive Products, Ltd.... ... ...
Averill, C. R., Ltd. ... ...

B

Bailey, Sir W. H., & Co., Ltd. ... ...
Bale & Church, Ltd. S3
Balfour, Henry, & Co., Ltd. ... ...
Begwaco Meters, Ltd. 731
Bell's Asbestos & Engineering, Ltd. ... ...
Benham & Sons, Ltd. ... ...
Blakeley, Firth, Sons & Co., Ltd.... 743
Booth, John & Sons (Bolton), Ltd. ... ...
Boydell, E., & Co., Ltd. ... ...
Bray, George, & Co., Ltd. ... ...
Bray, W. E., & Co., Ltd. ... ...
Bridges, S. N. & Co., Ltd. ... ...
Bright, Son & Co. (Clerkenwell), Ltd. S3
Bristol's Instrument Co., Ltd. ... ...
British Flint & Cerium Manufacturers, Ltd. ...
British, Foreign & Colonial Automatic Light Controlling Co., Ltd. ... ...
British Furnaces, Ltd. ... ...
British Gas Purifying Materials Co. ... ...
British Industries Fair ... ...
British Iron & Steel Federation 724
British Oxygen Co., Ltd. ... ...
British Paints, Ltd. ... ...
British Thermostat Co., Ltd. ... ...
British Thomson Houston, Ltd. ... ...
British Tyre and Rubber Co., Ltd. ... ...
British Vacuum Cleaner & Engineering Co., Ltd. ...
Broadbent, Thomas, & Sons, Ltd. ... ...
Brockhouse Heater Co., Ltd. ... ...
Broom & Wade, Ltd. 728
Brotherhood, Peter, Ltd. ... ...
Brown, J., & Co., Ltd. ... ...
Bugden, Thos., & Co. ... ...

C

Cambridge Instrument Co., Ltd. ... ...
Cannon Iron Foundries, Ltd. ... ...
Carron Co. 734
Cementation Co., Ltd. 732
Central Manufacturing & Trading Co. (Dudley) Ltd. S2
Chemical Engineering & Wilton's Patent Furnace Co., Ltd. ... ...
Chemical & Insulating Co., Ltd. ... ...
Cinema-Television, Ltd. ... ...
Clapham Bros., Ltd. 738
Clayton, Son & Co., Ltd. ... ...
Clifford Engineering Co., Ltd. ... ...
Cochran & Co., Annan, Ltd. ... ...
Cohen, George, Sons & Co., Ltd. ... ...
Collins, Thomas, & Co., Ltd. ... ...
Concrete Proofing Co., Ltd. 724
Consolidated Pneumatic Tool Co., Ltd. ... ...
Cowper Penfold & Co., Ltd. ... ...
Cox & Danks, Ltd.... ... ...
Crane, Ltd. 744
Crone & Taylor, Ltd. ... ...
Crossley Bros. ... ...
Curtis, A. L. & Co. ... ...
Cutler, Samuel, & Sons, Ltd. ... ...

D

Davey, Paxman & Co., Ltd. ... ...
De la Rue, Thomas, & Co., Ltd. (Potterton Gas Division) 781
Demolition & Construction Co. Ltd. 735
Dempster, R. & J., Ltd. ... ...
Dempster, Robert, & Sons, Ltd. ... ...
Derbyshire Silica Firebrick Co., Ltd. ... ...
Diaphragm & General Leather Co., Ltd. ... ...
Dick, R. & J., Ltd. ... ...
Donkin (The Bryan) Co., Ltd. ... ... Cover II
Douglas, Robert M., (Contractors), Ltd. ... ...
Douglas, William, & Sons, Ltd. ... ...
Drakes, Ltd.... ... ...
Drew, H. B., Ltd. ... ...
Dunlop & Ranken, Ltd. ... ...

E

E.B. Refractory Cement Co., Ltd. ... ...
Edgar, William, & Son, Ltd. ... ...
Electroflo Meters Co., Ltd. ... ...
Electrolux, Ltd. ... ...
Elliott Bros. (London), Ltd. ... ...
English Electric Co., Ltd. ... ...
Ether, Ltd. ... ...
Evershed & Vignoles, Ltd.... ... ...
Ewart Chainbelt Co., Ltd. ... ...
Ewart & Sons, Ltd.... ... ...
Expanded Metal Co., Ltd.... ... ...

PAGE

F

Falk Stadelmann & Co., Ltd. ... ...
Fibreglass, Ltd. ... ...
Filtrators, Ltd. ... ...
Flavel, S., & Co., Ltd. 775
Fluxite, Ltd.... ... ...
Four Oaks Spraying Machine Co., Ltd. ... ...
Franki Compressed Pile Co., Ltd. ... ...
Fraser & Chalmers, Engineering Works ... ...
Fry's Metal Foundries, Ltd. ... ...
Fyffe & Co., Ltd. ... ...

G

Gas Chambers & Coke Ovens, Ltd. 729
Gas Purification & Chemical, Ltd. S3
General Descaling Co., Ltd. ... ...
General Electric Co. Ltd., ...
General Gas Appliances, Ltd. 733
Gibbons Bros., Ltd. ... ...
Gibbons (Dudley), Ltd. ... ...
Glover, George, & Co., Ltd. 721
Glover, Thomas, & Co., Ltd. 748
Goodall Clayton & Co., Ltd. ... ...
Goodyear Mechanical Goods ... ...
Grant, David, & Co., Ltd.... ... ...
Graphite Products, Ltd. ... ...
Green & Boulding, Ltd. ... ...

H

Hamilton, A. H., & Co., Ltd. S2
Hardman & Holden, Ltd. 722
Harris & Pearson, Ltd. ... ...
Harrisons (London), Ltd. ... ...
Harvey, G. A., & Co. (London), Ltd. 723
Heaths (Eccles), Ltd. ... ...
Hayward Tyler, & Co., Ltd. ... ...
Hewitt Construction Co., Ltd. ... ...
Hickson's Timber Impregnation Co. (G.B.), Ltd. ...
Hilmor, Ltd.... 736
Holden & Brooke, Ltd. ... ...
Holmes, W. C., & Co., Ltd. S5
Honeywell-Brown, Ltd. ... ...
Hopkinsons, Ltd. ... ...
Horseley Bridge & Thomas Piggott, Ltd. ... ...
Horstmann Gear Co., Ltd.... ... ...
Howden, James, & Co., Ltd. ... ...facing p. 757
Hughes, F. A. & Co., Ltd. ... ...
Humphreys & Glasgow, Ltd. ... ... Cover I

I

Ideal Boilers & Radiators, Ltd. 725
I.C.I. Metals, Ltd. 741
Incandescent Heat Co., Ltd. ... ...
Ingham, John, & Sons, Ltd. 747
International Coin Counting Machine Co., Ltd. 736
International Combustion, Ltd. ... ...

J

Jeavons, E. E., & Co., Ltd. ... ...
Jeavons Engineering Co. 742
Jenkins, W. J., & Co., Ltd. 727
Johnson, C. H. (Machinery) Ltd. ... ...

K

Keay, E. C. & J., Ltd ... ...
Keith Blackman, Ltd. S6
Kerr, John & Co. (M/C) Ltd. ... ...
King, Walter, Ltd. S2,S3,S4
Kings Patent Agency, Ltd.... ... ... S3
Kirk & Co. (Tubes), Ltd. ... ...
Kirkham Hulett & Chandler, Ltd. ... ...
Kleenoff Co.... ... ...
Klinger, Richard, Ltd. ... ...

L

Laidlaw, R., & Son (Edin.), Ltd. 726
Lamont, James H., & Co., Ltd. ... ...
Lancashire Dynamo & Crypto, Ltd. ... ...
Lawler, Ayers & Co., Ltd.... ... ...
Le Bas Tube Co., Ltd. ... ...
Leeds X.L. Fire Cement Co. S3
Lionweld, Ltd. ... ...
Lind, Peter, Ltd. ... ...

M

Macpherson, Donald, & Co., Ltd. ... ...
Magnetic Valve Co., Ltd. ... ...
Main, R. & A., Ltd. 776, 777
Mavor & Coulson, Ltd. 730
Meltham Silica Fire Brick Co., Ltd. ... ...
Messenger & Sons, Ltd. S2
Meters, Ltd.... ... ...
Metropolitan Leather Co., Ltd. 746
Milnes Meters, Ltd. 734
Mitchell, H., & Co.... ... ...
Monk, A., & Co., Ltd. ... ...
Morris Commercial Cars, Ltd. ... ...

N

National Benzole Co., Ltd. ... ...
National Enamels, Ltd. ... ...
Newton Chambers & Co., Ltd. ... ...
Nordac, Ltd. ... ...
Nu-Swift Ltd. S3

O

Orme, Evans & Co., Ltd. 738
Oxley Engineering Co., Ltd. ... ...

P

Parkinson & Cowan (Gas Meters), Ltd. 748
Parkinson Stove Co., Ltd. 767
Pass, E. & Co., Ltd. 726

PAGE

Peckett & Sons, Ltd. ... ...
Peebles & Co., Ltd.... 739
Pegson, Ltd. ... ...
Perl Controls, Ltd. ... ...
Power Gas Corporation, Ltd. ... ...
Powers-Samas Accounting Machines (Sales), Ltd. ...
Press, William, & Son, Ltd. ... ...
Pulsometer Engineering Co., Ltd.... ... ...

R

Radiant Heating, Ltd. ... ...
Radiation, Ltd. 768, 769
Rawlplug Co., Ltd. ... ...
Reavell & Co., Ltd.... ... ... S2
Riley, A. J., & Son, Ltd. ... ...
Royles, Ltd. ... ...
Rozalex, Ltd. ... ...
Russell, R., & Sons, Ltd. 736

S

Salter, T. E., Ltd. ... ...
Saunders Valve Co. Ltd. ... ...
Scottish Non-Ferrous Tube Industries, Ltd. ...
Shimwell & Co., Ltd. ... ...
Siebe Gorman & Co., Ltd. ... ...
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Stewart & Gray, Ltd. ... ...
Stewarts & Lloyds, Ltd. ... ...
Stone, J. B., & Co., Ltd. ... ...
Stoves, Ltd. ... ...
Strachan & Henshaw, Ltd. 32
Stringer Bros. ... ...
Sugg, William, & Co., Ltd. ... ...
Summerson, Thos. & Sons, Ltd. ... ...
Sutcliffe Speakman & Co., Ltd. ... ...
Sutherland, A. G., Ltd. ... ...

T

Tarslag, Ltd. ... ...
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U

Underpressure Engineering Co., Ltd. ... ...
United Kingdom Construction & Engineering Co., Ltd. ... ...

V

Vale, Thomas, & Sons, Ltd. ... ...
Vanda Meters, Ltd.... ... ...
Visco Engineering Co., Ltd. ... ...
Vulcan Stove Co., Ltd. ... ...

W

W.D. (Sheeters), Ltd. ... ...
Wakefield, C. C., & Co., Ltd. 778
Wakelin, F. H., Ltd. ... ...
Walker, C. & W., Ltd. S1
Walker, Crosweller & Co., Ltd. ... ...
Waller, George, & Son, Ltd. ... ...
Ward, Thos. W., Ltd. 770
Wellington Tube Works, Ltd. ... ... Cover IV
Wellman Smith Owen Engineering Corpn., Ltd. 740
Wessex Industries (Poole) Ltd. ... ...
West's Gas Improvement Co., Ltd. ... Cover III
West Hunwick Silica & Firebrick Co., Ltd. ... ...
West's Piling & Construction Co., ...
Westwood & Wrights, Ltd. ... ...
Whessoe, Ltd. 737
Whitehouse, Wm., & Co., Ltd. ... ...
Wilkes, A. H., & Co., Ltd. ... ...
Willey & Co., Ltd. ... ...
Williams, John E., Ltd. ... ...
Williamson Cliff, Ltd. ... ...
Wilson, George, Gas Meters, Ltd. ... ...
Winn & Coales, Ltd. ... ...
Woodall-Duckham Vertical Retort & Oven Construction Co. (1920), Ltd. ... .. facing p. 756
Wood, Hugh, & Co., Ltd. ... ...
Wright, Alexander, & Co., Ltd. ... ...

Y

Yorkshire Copper Works, Ltd. ... ...

Appointments Vacant S3,S4
Appointments Wanted ... ...
Contracts Open ... ...
Educational ... .
Financial ... ...
Miscellaneous ... ...
Notice ... ...
Patents S3
Plant For Sale ... ...
Publications ... ...
Repairs S3

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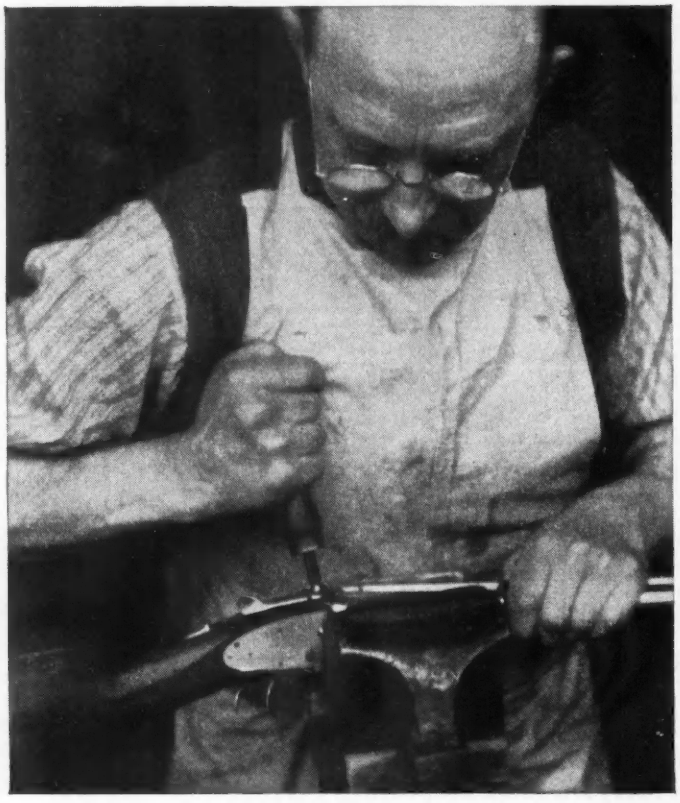

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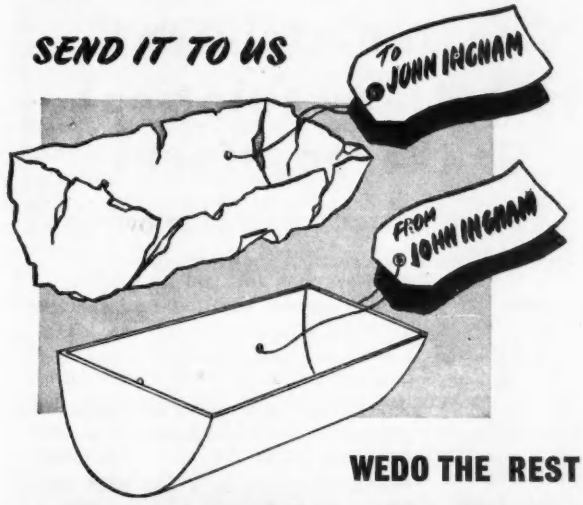

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VOL. 267 NO. 4608 SEPTEMBER 26, 1951

CONTENTS

Page

EDITORIAL COMMENT

Llanelly Meeting ... 749
The Committees ... 750
Impending Crisis ... 751
Coal from India ... 751
Emgas ... 751
Can You Afford It? ... 751

NEWS OF CURRENT EVENTS

Personal ... 752
Obituary ... 752
Diary ... 752
Sheffield Public Lighting ... 753
Liverpool Lighting Progress ... 753
Carlisle Industrial Exhibition ... 753
High Wind at Yeovil ... 754
Shotts Works to Close ... 754
Fuel Industries Awards ... 754
Wakefield Group Exhibit ... 754
First Voyage of the 'Sydenham' ... 755
Scope for Fuel Efficiency ... 755
Census of Production ... 756
New Gas Tariff ... 756
Floodlighting at Battersea ... 756
Llanelly Meeting of the 'Wales and Mon.' ... 757
Industrial Fuel Prospects ... 758
Festival Floodlighting in Kentish Village ... 759
Pipeline Corrosion in Sweden ... 759
Maidstone's Main Project ... 759
Inauguration of Nantgarw Coke Oven Plant ... 760
South Western Integration ... 762
Nursing Exhibition at Bristol ... 762
Public Lighting Progress: Annual Meeting of A.P.L.E. 763
Low Cost Gas ... 780
Gas Industry Vocabulary ... 774
Company News ... 782

AMERICAN SPOTLIGHT ... 766

TECHNICAL RECORD

Ireland's Present and Future Problems : Presidential Address of N. J. Robertson ... 771
North British Discussions ... 779

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Full Publishers' Notice : See Page S.3

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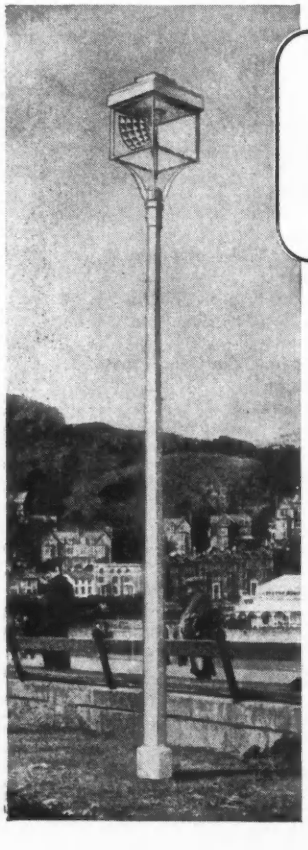

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GAS JOURNAL

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LLANELLY MEETING

LLANELLY, now an important unit in the gas industry in Wales, gave the members of the Wales and Monmouthshire Section of the Institution of Gas Engineers a warm welcome for their meeting last week—the second 'annual general' under the revised constitution of the Association founded in 1905. It was in keeping with tradition that the Section should visit the Chairman's home town. Llanelly is one of the larger boroughs in industrial South Wales and will provide a vital link in the rapidly developing western area gas grid which will draw a substantial part of its supplies from coke ovens and provide gas for the many heavy and light industries now being established throughout that part of the country. The great new tinplate works of the Steel Company of Wales—housed in spacious buildings of similar architectural design to those of the recently opened steel works at Port Talbot—is situated at Trostre, a suburb of Llanelly, and other industrial developments of far reaching importance are likely to make heavy demands on the available gas making plant.

Mr. Albert Pickard, who succeeded Mr. John Powdrill, M.B.E. (Pontypool), as Chairman last week, went from Yorkshire to Llanelly nine years ago when conditions so far as gas output were concerned were far from satisfactory. Today, the output is four times as great. Mr. Pickard is convener of the Swansea group committee, embracing six undertakings with a total make of 1,550 mill. cu.ft. per annum. Immediately prior to nationalisation he was Engineer, Manager, and Secretary of the Llanelly group of undertakings (Llanelly and Gowerton) of the United Kingdom Gas Corporation. He remains in charge of the two undertakings, Llanelly making about 400 mill. cu.ft. a year and Gowerton about 60 mill. The sphere in which he has achieved one of its biggest successes, however, has been that of education. Ever since he went to Wales he has striven to promote the better education of the juniors entering the industry, and the speaker at the Llanelly meeting who described him as 'the best Education Secretary Wales and Monmouthshire has ever had' did not exaggerate. A memorable aspect of the meeting was the unusually large number of students who attended to receive presentations in recognition of their examination successes—surely a tribute to the new Chairman's educational activities. The Section can look forward to a good year under his Chairmanship, and particularly to the May meeting, when the programme is usually somewhat less austere than at the September meeting when, as was the case last week, a single day is fully occupied with a business meeting, a paper, the luncheon and a works visit. Three notable visitors last week were Mr. J. H. Dyde, President of the Institution of Gas Engineers, Mr. R. N. Quirk, Under Secretary, Gas Division, Ministry of Fuel and Power, and Dr. A. B. Badger, Industrial Relations Officer of the Gas Council, one of the few Welsh speaking Welshmen in the industry and himself a native of Llanelly. Wales and Monmouthshire is one of the few sections, if not the only one, that has not yet decorated its President or Chairman with a distinguishing badge, but the omission is about to be made good. The report of the Management Committee states that an order for a badge, to be provided from the H. D. Madden Memorial Fund, has been placed. Much thought and care has gone into the selection of the design, and we shall look forward to seeing Mr. Pickard wearing the jewel at the next meeting.

Since nationalisation gave birth to the group committee system—a system which has been proved to be peculiarly suitable for dealing with the administration of the industry in Wales—senior officials have had

four opportunities per year of meeting to discuss their problems—twice at the Aberystwyth 'staff colleges' and twice at meetings of the Wales and Monmouthshire Section of the Institution of Gas Engineers. Those not qualified to attend the Aberystwyth meetings meet periodically in their groups, and come to the 'Wales and Mon.' in May and September. We believe we are right in saying that until last week members of the Wales Gas Board had been present at every meeting since vesting day. There was nothing on the agenda to suggest that they should not have been in attendance at Llanelly. In point of fact they were attending a meeting of the Board in Cardiff. It was neither by accident nor from ulterior motive that the two meetings synchronised. Relations between 'employer' and 'employed' are so perfectly friendly that both sides realised that from time to time it might be well to meet without each other's company. In this regard Wales is following a policy already pursued in other areas, where, apart from staff conferences and other occasions on which contact is essential, Board members are cordially welcomed at alternate meetings.

THE COMMITTEES

THE problem of setting out practicable ideas for the formulation of a national fuel policy is bedevilled, as so many other contemporary problems are, by the chronic shortage of capital and raw material. Nearly every measure of long term fuel economy involves the preparation and installation of plant, costly either in itself or by reason of the large number of units required to obtain the required effect.

The Minister of Fuel and Power has set up from time to time committees to advise him on one or other aspect of the problem. The original Fuel Efficiency Committee was to advise him 'on the application of measures for promoting economy and efficiency in the use and consumption of fuel and power; to survey the progress of the organisations established for this purpose; to report the problems arising from these surveys which appear to require scientific investigation; to advise generally as to the lines on which policy designed to raise the standards of utilisation of fuel and power can best be implemented.' Everyone will be familiar with the excellent work put in by Dr. Grummell and his colleagues; quite a lot of coal has been saved by economies in small scale steam raising and in similar directions. But it cannot be said that the work of this Committee impinged upon the major problems arising out of the overall efficiency or lack of efficiency in the great fuel using or distributing industries, the railways, or the gas and electricity supply industries. At any rate it was considered that by the end of 1950 this Committee had more or less done what it could and that a smaller body might carry on. The constitution of this 'smaller body' has raised our hopes considerably. So far the names of its Chairman, Captain W. Gregson, and three of its members, Mr. W. L. Boon, Mr. Oliver Lyle, and Dr. R. J. Sarjant, have been announced. These are names to conjure with. Their duty is said to be 'to advise the Minister of Fuel and Power on aspects of fuel efficiency, on the setting up of committees for special problems and on the report of such committees.'

In our issue of August 22 we published the announcement of another Committee which, under the chairmanship of Lord Ridley, is to consider 'in view of the growing demands for all forms of fuel and power arising from full employment and the rearmament programme, whether any further steps can be taken to promote the best use of our requirements and in the light of technical developments.' The personnel of this Committee is impressive, including names well known in industry, in science, and in social service; it is invited to survey the whole question of the use made of the basic fuels available—namely coal and oil. It seems clear that Lord Ridley's Committee is expected to recommend measures of general policy and immediate application. For it is during the next few years that, with the new burdens of the defence programme to be carried by an economy already at full stretch, all our productive resources will be under strain.

In the meantime Scotland has set up its own Fuel Efficiency Committee which, under the chairmanship of Sir Patrick J. Dollan, is to advise generally on the formulation of a policy designed to raise the standards of utilisation of fuel and power. Its terms of reference are very familiar to those of the English committees above referred to. It further aims at a thorough-going co-ordination of the coal, electricity, and gas boards of the nationalised industries and their closer co-operation with existing Scottish bodies dealing with industry and industrial development. Among other measures it proposes to set up a women's committee to co-ordinate domestic ideas on services of solid fuel, electricity, gas, etc. And it has in mind a number of other committees to consider other quite important but detailed aspects of the whole question.

These committees may be expected to put forward general policies but it is to Captain Gregson's Committee that we look for large scale, concrete, technological proposals. The basic principle of any satisfactory fuel policy for Great Britain must be the saving of coal. The substitution of oil, of hydraulic power, of solar energy or what not, only comes into the picture from that point of view. The members of this Committee so far announced have all done great work in practical fuel economy. The Chairman's own name is synonymous, in the gas and steel industries, with waste heat recovery, while in marine engineering it stands for efficiency and economy of the highest degree.

Mr. Oliver Lyle will, we think, be long remembered, not as the author of 'Efficient Use of Steam,' important though that it, but as the writer of the remarkable paper 'Inefficiency.' That paper showed how, with sufficient inducement, 80 mill. tons of coal a year could be saved. It closed with an examination of long term and short term policies which might work to this end and to postpone the evil day of coal exhaustion. The harnessing of atomic energy must still be slow and laborious and cannot be trusted to be anything but a distant possibility. But Mr. Lyle thought we might get on quicker with the

development of that perpetual atomic plant, operating under apparently good automatic control, in the sun. He dealt with fuel crops, with hydro-electric schemes (' the Severn Barrage Scheme should be looked on as necessity—not as a scheme which might just pay ') and with the production of solar motors, or to the capturing of its energy in ways other than photo-synthesis, rainfall, or wind.

IMPENDING CRISIS

MR. LYLE'S short term policies, however, are not short enough, we fear, to cope with this winter's crisis or that of several winters to come. We need not here repeat his remarkable, and by no means negligible, scheme for economy enforcement by fiscal means. The latest phase of his thought is his wholesale advocacy of the substitution for the condensing super-power stations for the generation of electricity of a large number of comparatively smaller stations linking with district heating. Quite recently there was an outbreak of correspondence in *The Times* on this subject. Mr. Lyle joined in the fray with his usual wit and wisdom. He sees that there is no future in trying to add hot water service to an existing housing scheme. It needs to be tried, at any rate in the first place, and to find out the value of district heat, in a much more highly concentrated mass of buildings, blocks of offices and flats whose owners and occupants can have all kinds of tariffs tried out on them.

A district-heat/electricity station must, for economy in hot water mains, be quite small, probably not more than five to ten megawatts. And here is the point—it must not be designed or operated by those steeped in condensing station practice. This is where the gas industry comes in too. District heating will never be a complete heat service. It must be supplemented by gas. Electricity must also be laid on for lighting and power, if not for heating. But the gas supplementary, high-temperature heat service will always be a very difficult peak load. Therefore any district-heating scheme, very rightly designed to correct the very low thermal efficiency of electricity generation, must be designed in collaboration with the other fuel services needed to round it off. It may be true that we have got to try to make district heating work in order to justify the generation of power by steam. But we cannot do it without solving the problem of the inevitable peak load in the supplementary heat services.

None of these schemes, however, can be brought into effect in time to deal with the immediately impending crisis. It is clear that the domestic consumer, whether of gas or of electricity, must go short so that the wheels of industry may be kept turning—this winter at least. There is no time for the deliberations of another committee of enquiry. What is needed is an executive committee to take immediate action. Inducements to increase domestic consumption must be brought to a standstill. If things get really bad we may yet have to come to the rationing of gas and electricity, difficult and annoying though this may be. Every new industrial load, even, must be strictly scrutinised to see whether plant is available to meet it, whether it really contributes to coal economy, whether it is necessary to the rearmament programme or the essential national economy. Measures such as these might contribute something *this* winter to mitigate the demand to the industrial machine of load-shedding, power cuts, and pressure reductions.

COAL FROM INDIA

THE Minister of Fuel and Power announces that the National Coal Board has been authorised to import limited quantities of Indian coal for use next winter by the gasworks, principally those in the London Area. This step is being taken to reduce the risk next winter of having to support the gasworks at the expense of the house coal market. These imports will thus improve the prospect for coal supplies for householders in London and elsewhere.

EMGAS

THE appointment of Mr. C. Norton-Smith as Editor of the East Midlands Gas Board's *Emgas* magazine (reported in the *Journal* on May 9) would seem to have had far-reaching effects on the appearance of this lively publication. The last issue revealed a complete change of format, embracing a reduction of page size to pocket dimensions and a corresponding increase in the number of pages. In common with most of our ' house ' magazines, *Emgas* now has a cover photograph, but the addition of a third colour is limited to the cover pages—a pleasing indication of economic outlook, which is not shared by all gas board publications. Text pages are enlivened by excellent layout, and there is a wealth of bright ideas and amusing forms of presentation.

Our solitary criticism relates to the journal's principal feature ' *Emgas* Goes to the Festival,' written by Miss Pamela Brown of the editorial office. Although well written and illustrated, the article makes rather slighting reference to the gas exhibits at the South Bank. If she had criticised the lack of adequate displays dealing with gas manufacture and its importance to the country, we should have agreed whole-heartedly; but she confines her comments to the Homes and Gardens pavilion. ' Here,' she writes, ' we found the main gas exhibits, if one can call them that, for gas . . . is not very much to the fore as far as the exhibits go.' After noting ' one or two cookers ' and a single water heater she concludes: ' This seems a rather sad oversight on the part of the designers, for surely the size and importance of the gas industry warrants it a bigger place, if not a pavilion of its own, in a national exhibition.' Now we sympathise with Miss Brown's ideas about a gas pavilion, but we must point out that if one aspect of the Homes and Gardens exhibits was more marked than another it was assuredly the remarkable preponderance of gas appliances. One cannot spot everything at an exhibition as complex as this, and the visitor must be forgiven for overlooking certain items. But it is a pity that this rather unfair summing up should have found its way into a gas board magazine.

CAN YOU AFFORD IT?

IN his 1951 Budget proposals, Mr. Hugh Gaitskell said that the nation needed an extra £150 mill. this year to make ends meet. Aims of Industry, Ltd., asked S. J. Wheler, a Staffordshire-born research statistician, and Hugo O'Hear, a Glasgow law graduate, to investigate the contention put forward by many people at the time that

the gap could be overcome by cutting State expenditure. The result is a snappily written and humorously illustrated booklet bearing the title *Can You Afford It?* now on sale at all bookstalls at 1s. It argues that there are now in existence three Ministries whose separate existence it is difficult to justify at all. They are the Ministry of Transport, the Ministry of Civil Aviation, and the Ministry of Fuel and Power, all of which deal with industries which have been nationalised and have brought into being 'huge nationalised boards and corporations to run them.' The Airways Corporations, Transport Commission, National Coal Board, Gas Council, and British Electricity Authority should, it is contended, be wholly responsible to the State and to the consumers for the industries which they were brought into being to run. Any remaining essential duties of the three Ministries could be concentrated in a single ministry limited as regards expenditure to £2¼ to £2½ mill. against the present total cost of over £27½ mill.

Going further into detail the authors point out that coal, electricity, and gas are all nationalised and each has its own board or authority. They have set up between them no fewer than 34 areas or divisions. Yet within the Ministry there is a Coal Division, an Electricity Division, and a Gas Division, employing between them 167 people and costing the taxpayer £123,400. The Minister has a staff of 926 at a cost of £447,000, 'which could be abolished.' The Gas Council at the end of March, 1950, employed about 32,000 administrative, technical, and clerical staff. Let us be quite fair and point out that this is the total employed throughout the industry by the 12 area boards. With equal thoroughness the authors examine many other departments of State activity and arrive at a final summary of over £131 mill. which could be saved annually by judicious cutting of unnecessary expenditure. Serious efforts by the Federation of British Industries and leading industrialists to persuade the Government to cut down have failed repeatedly. Perhaps the humorous approach will prove more successful!

Personal

Mr. Charles Lowe, a 64-year-old shop steward, who has been working for the Nottingham gas undertaking for 50 years, was presented with a wallet containing bank notes by Mr. H. F. H. Jones, chairman of the East Midlands Gas Board, on September 20.

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Sir Eric Rideal, F.R.S., has been appointed a member of the Advisory Council for Scientific and Industrial Research from October 1. Sir Eric is Professor of Physical Chemistry at King's College, London. He was Professor of Colloid Science, Cambridge University, from 1930 to 1946, and Fullerian Professor of Chemistry and Director of the Davy-Faraday Research Laboratory at the Royal Institution from 1946 to 1949. **Professor H. W. Melville,** F.R.S., retires from the Council on September 30, on completion of his period of service.

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The Directors of Sidney Flavel & Co., Ltd., announce that **Mr. W. Arnold Jackson** has resigned his position as Managing Director effective as from Sept. 30 on medical advice. He has been Chairman and Managing Director since 1944. Mr. Jackson hopes, if his health permits, to retain the Chairmanship of the Company for a further period. It is not his intention to relinquish wholly his interest in the affairs of Sidney Flavel & Co., Ltd., and he will continue to advise and consult with the Directors as circumstances dictate.

The Board has appointed **Mr. Duncan Wright,** C.A., to the position of Managing Director as from Oct. 1, 1951. In addition, **Mr. W. E. Benton,** M.SC., and **Mr. T. G. H. Coleman** will join the Board as from that date.

Mr. Ralph Bint, Administrative Officer to the Fylde Group of the North Western Gas Board, gained fresh honours at the South of England tennis championships held at Devonshire Park, Eastbourne, last week. He won both the Veterans' Singles (All England Championship) and the Veterans' Singles (Level). In the All England Championship final he defeated A. Gleed (the holder) 6—2, 6—1, to receive the silver salver donated by C. O. Tuckey, Esq., and in the Veterans' Singles (Level) final he defeated S. T. Jakimowicz 6—1, 6—3, to receive the cup donated by H. G. Michelmore, Esq.

Obituary

Mr. A. J. Harrison, for many years Engineer and Manager of the Accrington Gas and Water Board, died recently in Manchester. We last met him at the spring meeting of the Wales and Monmouthshire Section of the Institution of Gas Engineers at Llandudno. Three of his former pupils have presided over the Section and the former Association: Mr. O. P. Cronshaw, Mr. H. Blythe, and Mr. J. Powdrill.

Diary

GAS SERVICE CONFERENCE POSTPONED

The Conference for sales and service personnel in the gas industry, which the Gas Council was to hold in London on October 23, 24 and 25, has been postponed on account of the General Election.

It will be held instead on March 11 to 13, 1952.

Sept. 27.—North Thames Gas Consultative Council: Westminster City Hall, Charing Cross Road, 2.30 p.m.

Sept. 27.—Royal Institute of Chemistry: Seventh Dalton Lecture, 'A Hundred Years of Chemistry,' Lord McGowan, K.B.E., D.C.L., LL.D. Town Hall, Manchester.

Sept. 28.—Scottish Junior Gas Association (Western District): Presidential Address of J. F. Wilson. Royal Technical College, Glasgow, 5.30 p.m.

Sept. 29.—Eastern Junior Gas Association: Presidential Meeting, Cambridge.

Sept. 29-Oct. 4.—International Bakers and Confectioners Exhibition, Olympia. Gas Council Exhibit.

Oct. 4.—Gas Council Industrial Gas Development Committee: 17, Grosvenor Crescent, 9.30 a.m.

Oct. 5.—Institute of Fuel (South Wales Section): 'Fuel Efficiency in the Oil Industry,' M. J. Stradling. South Wales Institute of Engineers, Park Place, Cardiff, 6 p.m.

Oct. 6.—Western Junior Gas Association: Opening Meeting, Swindon. Visit to Gorse Hill Works, followed by Paper by H. Hobbs.

Oct. 6.—Yorkshire Junior Gas Association: Annual General Meeting. 'Large Scale Organisation in the Gas Industry,' Dr. R. S. Edwards, B.SC., A.R.C.S., Chairman, North Eastern Gas Board.

Oct. 6.—Scottish Junior Gas Association (Eastern District): Opening Meeting, Falkirk. Presidential Address, G. Wood.

Oct. 8.—Institute of Fuel (Midland Students' Section): Chairman's Address, H. B. Bassett. The University, Edmund Street, Birmingham, 7.30 p.m.

Oct. 8.—Institute of Fuel (North Eastern Section): 'Pore-Size Analysis of Metallurgical Coke,' Dr. A. Gilchrist and Dr. A. Taylor. King's College, Newcastle-upon-Tyne, 6.30 p.m.

Oct. 9.—Midland Junior Gas Association: Presidential Address, R. B. Watkins.

Oct. 10.—Scottish Junior Gas Association (Western District): Evening visit to North British Locomotive Company, Glasgow, 7.30 p.m.

Oct. 10.—Institute of Fuel (Yorkshire Section): Chairman's Address, Professor A. L. Roberts. The University, Sheffield, 6.30 p.m.

Sheffield Public Lighting

In the 12th report as City of Sheffield Lighting Engineer, covering the year ended March 31, 1951, Mr. C. J. Chisholm states that the city was fortunate in enjoying full lighting, having regard to the fact that many towns, due to shortage of materials, are not yet able to relight all their street lamps. Additional lamps, both gas and electric, were erected throughout the city where improved lighting was considered to be necessary.

Electric lamps in use increased from 14,537 to 15,259. There were 26 additional gas lamps, but 138 were discontinued, the net result being a decrease from 12,350 to 12,238. Gas mantles used during the year totalled 39,356, an average of 1.418 mantles per nozzle per annum, thus maintaining Sheffield's exceptionally low mantle consumption. Electric bulbs used numbered 28,343, or 1.782 per lighting point per annum.

Wilful damage again occurred, no fewer than 5,504 panes of glass in gas lamps, and 960 electric bulbs being broken, while 87 bulbs were removed from lamps. Lamps are inspected every night except Sunday, when only main roads and traffic bollards are inspected by lamp surveyors in motor vehicles.

Mr. Chisholm calls attention to difficulty experienced in obtaining suitable men to fill vacancies for lamp attendants. Gas consumption in public lamps during the year was 153,441,243 cu.ft. (an increase of a little over 17 mill. cu.ft.) and electricity consumption was 6,646,451 units, an increase of 330,401 units.

During the year 310 gas lanterns were overhauled and repaired in the workshops;' 1,644 gas burners were cleaned, re-set, and tested; 904 clock controllers for gas lamps, 228 electric time switches, and 36 radiovisors were overhauled, tested, and adjusted in the workshops; and 650 clock controllers, 12 time switches, and 15 radiovisors were returned to the makers for overhaul; 25 gas controllers were also returned to makers for conversion to electric time switches.

Of the 706 miles of lighted streets, 408 are lighted by gas and 298 by electricity.

Irish Association Golf.—Torrential rain early on the morning of September 13 turned to a bright afternoon, and 11 stalwarts from the annual meeting of the Irish Gas Association held in Dublin earlier in the week, under the command of Mr. T. D. Hamilton, lunched at Woodbrook and afterwards played for the Grant cup and a replica presented by Mr. W. Cole. The results were as follows: Grant cup, R. Pollock (Enniskillen); 2nd prize, S. Doyle (Cork); 3rd prize, J. J. O'Mahony (Cork); 4th prize, A. Apsey (Dublin). The prizes were presented by Mr. Harold Bennet.

CARLISLE INDUSTRIAL EXHIBITION

With the full co-operation of Carlisle City Corporation and in conjunction with the Historical Pageant and Festival of Britain celebrations, a most successful display of local industries was held in the Market from August 6-11. The inaugural opening was undertaken by the Mayor before a gathering comprising the leading industrialists and civic notabilities in the North of England, and a noteworthy feature was the visit of H.R.H. Princess Margaret, who spent a considerable period touring the exhibition. The stand of the Carlisle division of the Northern Gas Board had, as its theme 'Gas Manufacture and its Varied Application and Utilization in Carlisle.' Visitors totalled 34,000, and the exhibition proved the most successful event of the week's activities.

Liverpool Lighting Progress

Steady progress in the restoration to pre-war standard of the lighting installations at Liverpool are reported by the Liverpool City Lighting Engineer, Mr. Charles C. Smith, in his annual report. He states that experiments are taking place prior to the preparation of a completely new lighting scheme for the Queensway Tunnel—a task of considerable interest and importance.

Malicious damage to street lamps and installations is still causing the committee concern. Last year 29,250 glass sides and 2,000 bulbs had to be replaced on that account. A propaganda film was being produced with the object of bringing the matter to the notice of parents, while police court proceedings were being increased where offenders were caught.

By the end of the year there were 19,365 electric and 9,889 gas lamps lighted, compared with pre-war totals of 17,989 electric and 15,181 gas lamps. The mileage of streets lighted today was 788 compared with 953½ when war broke out. The policy of 'spot-lighting' policemen on point duty at night had been continued and extended, and there were now 29 of these spot-lights in operation.

During the year 8,046,579 units of electricity were consumed compared with 7,698,464 the previous year, the cost being £35,783 16s. 8d. compared with £31,549 13s. 5d., representing an average price of 1.06d. and 0.908d. respectively. The number of M.F. electric lamps in use was 69,216 and the number of sodium lamps was 3,831. About 4,000 gas lamps remained to be conditioned, but it was pointed out that susceptibility to malicious damage and difficulties of repair greatly handicapped restoration work.

During the year consumption of gas amounted to 536,185 therms compared with 499,699 in 1949-50, and the respective charges were £16,979 and £15,315. The number of gas mantles used was 55,996, the heavy usage being due to the extensive breakage of glass in street lamps. The cost of malicious damage during the year was estimated at £4,000. Gross expenditure during the year was £273,503 while income was £90,000, leaving a net expenditure of £183,503 which represented a rate of about 7.045d. in the £.

Stripping of piping from roofs is worrying Scottish Gas Board officials in several areas. Thieves are seeking old disused piping, of block tin or lead, both of which are fetching heavy prices in the scrap market. To get these they enter tenement attics, cutting older piping away. The danger arises that they may leave pipes open to allow gas to seep through. Over 30 cases have been notified in Paisley alone in recent months. Gas Board workmen have been called out overnight to deal with escapes, and these have proved to be the result of removal of piping. Apart from this danger, theft of lead roofing has become increasingly common.

HIGH WIND AT YEOVIL

This remarkable photograph shows the extent of the disaster which befell the Southern Gas Board's exhibit at the Yeovil Show on September 13, as a result of a severe gale.

Shotts Works to Close

THE Scottish Gas Board intends to discontinue the manufacture of gas at Shotts within a year. This intimation has been made to Lanark County Council, who had before them last week a report by the Drainage Committee on an inquiry made to them as to whether the Authority would grant permission to the Board to link their effluent from the works to the Council's sewers.

The committee reported that the inquiry was made by Young and Cruickshank—agents for the trustees of the late Robert Forrest—who had stated that the effluent from the works was being discharged on to ground to the east of the works, to which they had an objection. In a report to the committee, the drainage engineer stated that while the quantity of crude gas liquor being produced at Shotts was relatively small, he could not agree to a connection being made to the public sewer until after adequate pre-treatment and flow regulating plant had been installed.

He had had a meeting with a technical assistant of the Gas Board and had learned that it was the intention of the Board to discontinue the manufacture of gas at Shotts within a year, and that the small quantity of gas liquor at present being produced was fairly well diluted before being discharged into the South Calder Water. At the point of discharge the Calder was already a polluted stream (due to industrial trades waste) and the addition of the diluted gas liquor would make little or no difference to the condition of the stream.

The Engineer informed the committee that the Gas Board was prepared to continue the effluent pipe down to the edge of the stream and he was, therefore, of opinion that there was no sound case for connecting the gasworks effluent to the public sewers. The Council, after hearing the committee's report, agreed with this view and decided to inform Young and Cruickshank accordingly.

Fuel Industries Awards

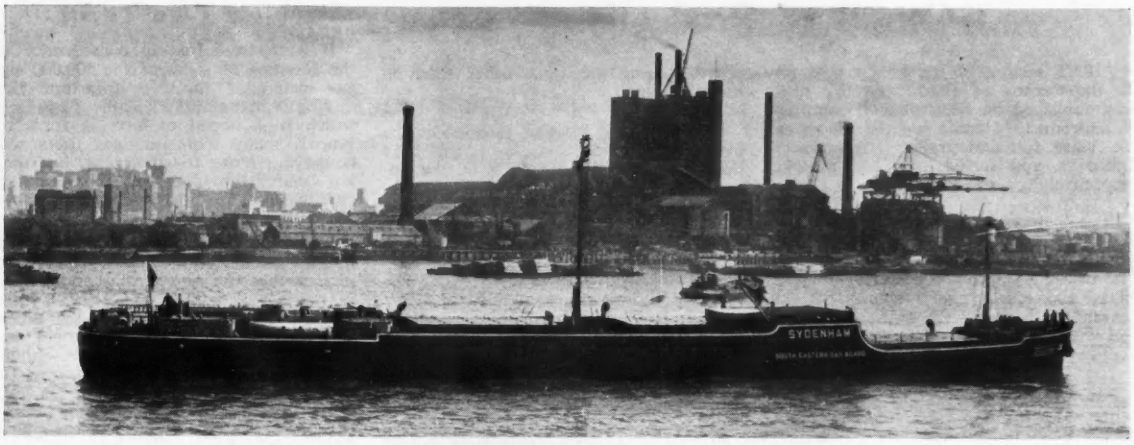
The Minister of Fuel and Power, Mr. Philip Noel-Baker, acting on behalf of His Majesty the King presented British Empire Medals to recipients from the fuel and power industries. Seven of the thirty-four presented were to the gas industry. In the course of an introductory talk the Minister said: Six of the awards are for acts of very notable gallantry. In many of the other awards the element of gallantry enters too: bravery in the face of danger; men rescued from the peril of death and injury. But in the case of the others, bravery has not been the main reason for which the honour has been conferred. They have been given for long and faithful service to the industry to which each recipient belongs. They are to all the branches of our nation's main industries. In numbers, coal comes first—perhaps because the coal population is higher! 17 are for coal; one for the house coal emergency scheme; 8 for gas and 8 for electricity—strict neutrality between these two rivals.

At the presentation ceremony which followed, the following members of the gas industry received the honour:

C. S. Aveson (Assistant Foreman, Southern Gas Board).
H. Boyd (Trench Inspector, East Midlands).
I. W. E. Hill (Truck Weighman, North Eastern).
T. Reynolds, (Storekeeper, Scottish).
L. R. Robertson (Manager, Wales).
F. J. Walker (Mains Foreman, South Eastern).
A. A. Bates (Warehouse Checker, North Thames).
J. Hodgson, Distribution Foreman at Workington (Northern), also awarded a medal, was not present at the ceremony.

WAKEFIELD GROUP EXHIBIT

At the Knottingley Industrial Exhibition sponsored by the local urban district council in connection with the Festival celebrations, the gas exhibit staged by the North Eastern Gas Board took the form of showing various types of automatic controls that are available for use with industrial applications of gas. On the left of the photograph can be seen a complete range of time, temperature, and flame failure controls as applied to boiler installations. Also shown on this composite exhibit are the various types of neat gas burners. On the right is the exhibit of electronic control of flame failure and spark ignition controls. In the centre of the stand was displayed a range of appliances including large scale cookers, water heaters, and incinerators for use in industrial canteens.

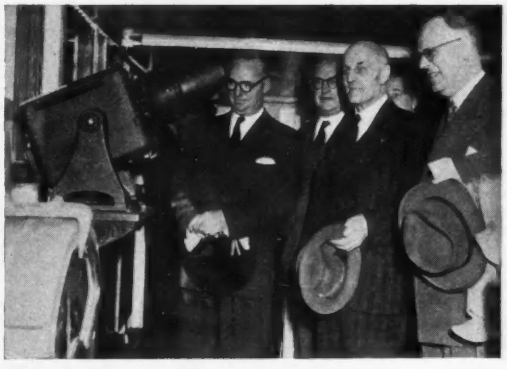


FIRST VOYAGE OF THE 'SYDENHAM'

LAUNCHED in May by Mrs. Brown, wife of Mr. Tom Brown, member of the South Eastern Gas Board and formerly Managing Director of the South Suburban Company, whose chief offices were at Lower Sydenham, the M.V. *Sydenham* completed her maiden voyage when she tied up at the East Greenwich coal jetty at midday on September 14. Mr. W. K. Hutchison, Chairman, and members of the Board, with Mrs. Tom Brown, chief officials, including Mr. A. G. Gostelow (Coal and Shipping Manager), and a number of guests were on the jetty to welcome the new ship, and greeting blasts on their sirens were sounded by the M.V. *Mitcham* (1946) and the S.S. *Redriff* (1925), one of the youngest and one of the oldest sister vessels in the service of the Board bound for the north east coast.

The Board's fleet of 14 ships is engaged in the delivery of coal to the 12 gasworks in the Metropolitan and West Surrey divisions. Some 2¼ mill. tons per annum are used by these works, some of which is carried in charter ships. The vessels are unloaded at the works at East Greenwich, Rotherhithe, and Wandsworth. All can be received at East Greenwich, but only smaller vessels can be discharged at Rotherhithe, and because of low span bridges only those colliers with low superstructures are able to reach Wandsworth. *Sydenham* is the ninth of the 'up-river' class designed to navigate the Thames bridges up to Wandsworth.

Built by the Burntisland Shipbuilding Co., Ltd., *Sydenham* is a single-screw diesel engined collier 275 ft. long, 39 ft. 6 in. broad, with a cargo capacity of 2,800 tons. She is powered by an eight-cylinder British Polar marine diesel engine of 1,180 b.h.p., giving a speed of approximately 12 knots, and is equipped with all the most modern navigational aids, including radar, which enables the master and navigating officers to 'see' ships and other objects in the vicinity in foggy weather. Single berth cabins are arranged for the ship's full complement of 17. A Calor gas cooker is installed amidships, solid fuel being used for cooking in the after-galley.



Shown examining the planned position indicator of the ship's radar equipment, our photograph includes, right to left: Mr. Tom Brown, Sir Roy Gill (River Superintendent), Mr. A. S. Holden (Deputy Secretary), and Mr. T. W. Gibson (Divisional Engineer, Kent Suburban Division).

SCOPE FOR FUEL EFFICIENCY

EXISTING scope for enormous saving in fuel consumption was emphasised at a meeting of the Midland Regional Board for Industry in Birmingham on September 18 under the chairmanship of Major C. R. Dibben. It was said to be applicable to all forms of fuel including gas, and it was indicated that the West Midlands Gas Board was taking special steps to encourage the best use of apparatus.

It was stated in a report that there could be no doubt whatever that considerable fuel savings could be made if everyone practised fuel efficiency by applying existing knowledge to liberate all the energy in fuel by efficient combustion and by using the resultant heat and power with minimum wastage. The bulk of these savings could be made, it was insisted, by means lying to hand without elaborate plant and further research. Industrial fuel efficiency could be increased by efficient stoking, adequate instrumentation, maintenance of accuracy of instruments, and the operation of plant in accordance with instrument readings, lagging of hot pipes and surfaces, stopping steam leaks, waste heat recovery, use of back pressure engines or turbines to generate electrical power, where appropriate, thermal insulation of buildings, attention of heat leakages from the loading of high temperature furnaces, etc.

It was urged that new factories could incorporate thermal insulation in the structure and install fuel efficient plant at the outset. In addition, advantage could be taken of the educational courses in boiler house practice, combustion engineering, steam utilisation, etc., which technical colleges and institutes were ready to provide in all areas.

Mr. A. H. Pinder, Ministry of Fuel and Power, said it was difficult to assess the savings that could be made, but a reliable estimate was that if everything was done properly little more than one half of the total fuel now used would be required. In present circumstances where inspectors went to factories it was found that anything from 10-40% could be saved. The classes were very valuable, but it was difficult to secure attendance. The men were not really students as such, but were men who were operating plant already. Even by short-term measures savings could be made of probably up to 20%. In one case use of 30 tons of fuel per week was cut to 25%. That was only a small job, but it showed what could be done and if spread over industry, could in the aggregate result in very big savings.

Census of Production

FIRST section of the final report on the Census of Production for 1948 was published on September 7, comprisin gintroductory notes and the report on the blast furnaces trade. (Stationery Office 2s. and 1s. 6d. plus 1½d. postage respectively).

The complete final report will include 156 separate booklets corresponding to the trades covered by the census. The introductory notes describe and explain the scope and methods of the census, the bases of the questions asked, and the calculations made in compiling the figures shown in the trade reports.

For the final report corrections and amendments have been made to the figures published in the preliminary reports (summarised in the *Board of Trade Journal* of August 11) as a result of a few late returns and re-classification of a small number of returns made necessary by later information. The aggregates shown in the final booklets may therefore be slightly different from those included in the preliminary reports.

Further trade reports will be published at short intervals.

The 1951 Census

In the Census of Production for 1951, the forms for which will be sent to firms during the first week of January, 1952, information will be collected about power equipment and fuel usage and about shift working. Details on these subjects will normally be required for the week ending September 22, 1951, and will be required from all establishments employing more than ten persons on the average in the field of the census of production except those of textile converters, builders and contractors, and the building and civil engineering departments of local authorities, railway, tramway and canal undertakings. Special arrangements for coal mines, petroleum refineries, and gas and electricity undertakings are being made in co-operation with the Ministry of Fuel and Power.

Firms are being asked to state the total installed capacity on September 22, 1951, and reserve or idle capacity during the week ending on that date of the various types of prime movers driving generators, expressed in terms of brake horse power for reciprocating internal combustion engines and horse power in all other cases; the various types of prime movers not driving generators; generators expressed in terms of their rated maximum continuous capacity in kilowatts; and electric motors expressed in terms of maximum continuous brake-horse-power, distinguishing as far as possible between those driven by purchased electricity and those driven by electricity generated within the works, with separate particulars of the number and capacity of fractional horse-power motors of less than 1 h.p.

Questions will also be asked about the description, duration and number of shifts worked in the week ending September 22, 1951, the average number of operatives employed on each shift during the week and the average number employed during the week other than on shift-working.

Copies of the relative sections of the Census of Production form for 1951 showing the precise details of the information to be collected on these subjects (early in 1952) are available on application to the Census of Production Office, Neville House, Page Street, London, S.W.1.

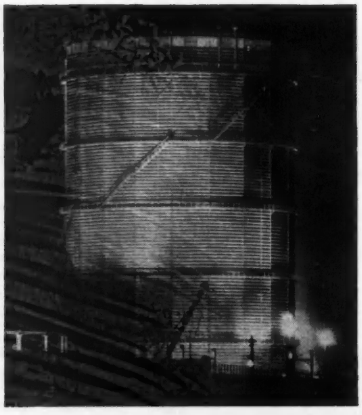
Just published by the Institution of Gas Engineers is the grey edition (Communication No. 377/178) of ' The Adjustment of Gas Appliances,' by F. E. Mills. This is now available from the Secretary of the Institution at 17, Grosvenor Crescent, S.W.1, price 2s. 6d. per copy, post free.

New Gas Tariff

It is reported that in consequence of the resetting of some of the 500,000 slot gas meters of the North-Eastern Gas Board in preparation for the new tariff which it is hoped to have in force by Jan. 1, many Yorkshire gas users will be paying more for their gas, but they are assured that they will get the difference back in the form of a rebate when the collector calls.

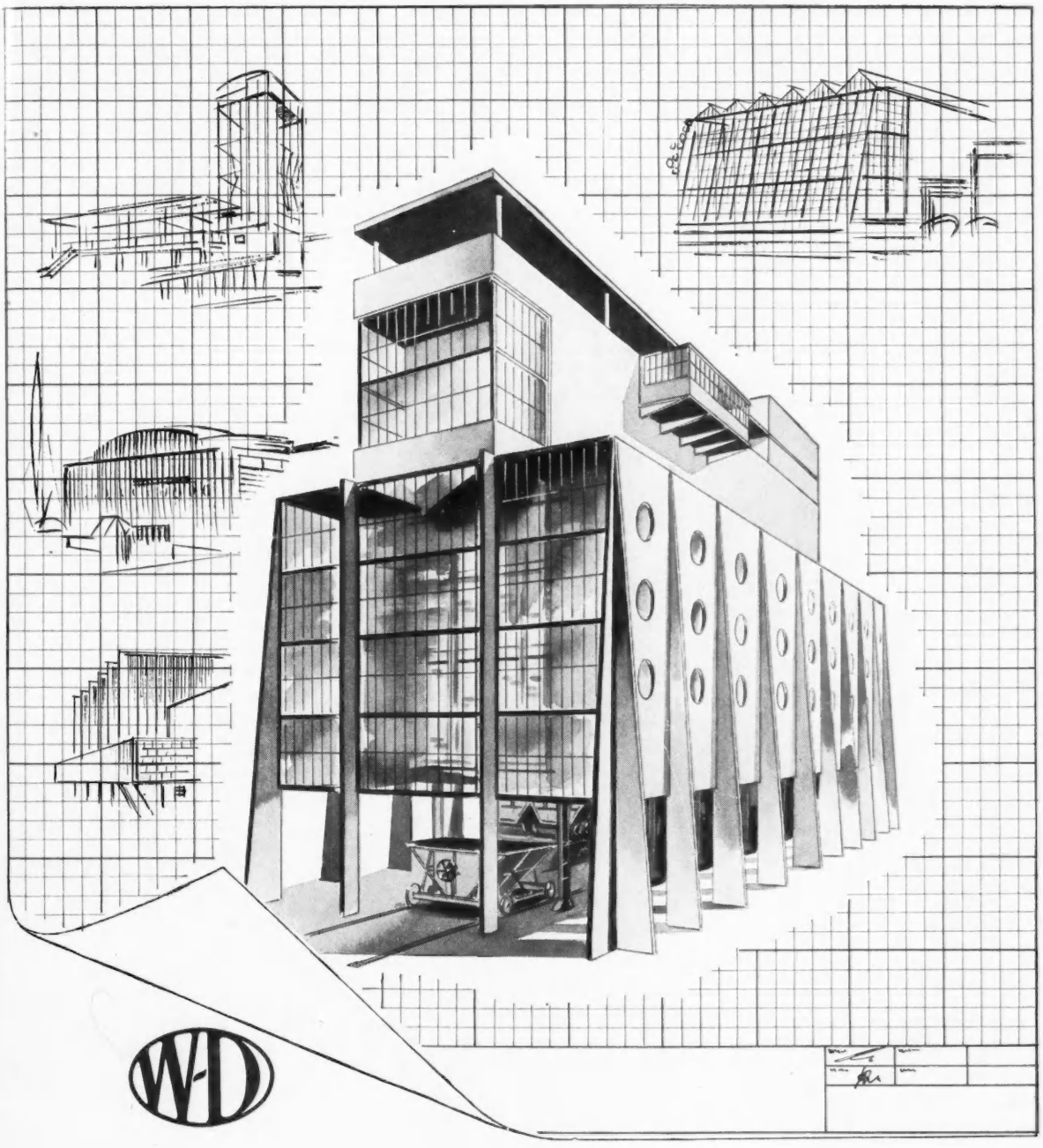
Mr. N. Hudson, the North Eastern Board's chief commercial officer, explained that the new tariff was intended to simplify and unify gas prices. Most of the 79 undertakings which the Board had ' inherited ' had different prices and tariffs for gas. The new tariff should end the majority of these variations. He added that until proper notice as laid down in the Gas Act was given of any change in price the present prices would be maintained.

FLOODLIGHTING AT BATTERSEA



The waterless gasholder at Battersea has been floodlit by the North Thames Gas Board. This holder—some 300 ft. in height and with a diameter of about 185 ft.—has a capacity of 6,500,000 cu.ft. and was put to work in 1932. The holder is lit from ground level with 42 × 1,000 W ' Ediswan ' lamps. The detailed structure of the holder makes lighting extremely difficult, as the sheeting contains a large number of overlapping members which cast strong shadows all round the holder and up its entire height. The job was completed in two weeks, the electrical installation being done by Messrs. Drake & Gorham. The holder dominates the Festival Fair site and is a neighbour of the Battersea Power Station, which is also floodlit for the benefit of visitors. The impressive view from the top of the holder is shown in the photograph below.

The possible influence of the South Bank Exhibition upon future Retort House Design !



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HOWDEN

Llanelly Meeting of the 'Wales and Mon.'

Mr. A. Pickard Installed as Chairman

THE second annual general meeting of the Wales and Monmouthshire Section of the Institution of Gas Engineers was held at Llanelly on September 19, when in the presence of an attendance well up to, if not above, the average for a September meeting, Mr. J. Powdrill (Pontypool) inducted his successor, Mr. A. Pickard (Engineer and Manager of the Llanelly and Gowerton undertakings and Convener of the Swansea Group Committee) into the chair. The meeting was attended by Mr. J. H. Dyde, President of the Institution of Gas Engineers, and was noteworthy for the unusually large number of Wales juniors and students who attended to receive presentations in recognition of their successes in the examinations of the Institution of Gas Engineers and the City and Guilds of London Institute.

A civic welcome was accorded to the Section by Councillor FRANK GRIFFITHS, Deputy Mayor of Llanelly, who referred to a great development that had taken place in the town since the organisation last met there very many years ago. Apart from Llanelly's fame in regard to steel and tinplate production, he claimed it was the biggest Welsh-speaking town in Wales and the most warm-hearted town in the world. It faced big changes in the near future in which the gas industry must play an important part. It looked to the experts such as the members of the Section who had done so much to improve the efficiency of the gas industry in the past to move with the times and increase the production of gas to the limit of the man-power and materials available. Since Mr. Pickard came to Llanelly only a few years ago gas production at the local works had increased by 300%, a remarkable and amazing achievement. He congratulated Mr. Pickard on his election as Chairman of the Section. He was well known and esteemed in the town, and the only criticism he could offer about him was that he had not yet become a Welsh-speaking Welshman.

President Welcomed

Mr. POWDRILL, who presided during the first part of the meeting, acknowledged the Deputy Mayor's welcome and in turn extended a warm welcome to Mr. J. H. Dyde, President of the Institution of Gas Engineers on his first official visit to the Section.

The Hon. Secretary, Mr. K. E. TIDDY, reported the receipt of a number of apologies for absence, including those from Mr. P. J. Noel-Baker (Minister of Fuel and Power); Mr. T. Mervyn Jones, Mr. R. S. Snelling, and Mr. E. M. Edwards (Chairman, Deputy Chairman and full-time member respectively of the Wales Gas Board); Mr. J. C. Clay, Sir William Jones, and Alderman J. F. Hamer (members of the Wales Gas Board); Mr. J. S. Smith (Ministry of Fuel and Power); Dr. W. T. K. Braunholtz (Secretary of the Institution of Gas Engineers), and the Chairmen and Secretaries of other District Sections.

Presenting the report of the Management Committee, the Secretary stated that the incorporation of the old Association into a District Section of the Institution was nearly completed, but formalities regarding the admission of members to various classes of membership of the Institution remained to be concluded at the autumn meeting in November. Membership of the Section was now 184. Under the new rules the old class of Associate had been abolished and all members were now classed as full members of the Sections. The report recorded the deaths of A. E. Williams (Penarth), H. Greenwood (Illingworth, Halifax), and N. Somerville (Llantrisant), and announced the resignation of D. H. Thomas (Ammanford), H. Parry Jones (Llangollen), J. F. Thomas (Cardiff), F. Worthington (Warrington), H. Duxbury (Llandudno), H. Parry (Holyhead), S. A. Lawrence (Walsall), E. G. F. Davey (Connah's Quay), and J. T. Turpie (Mold).

The Octavius Thomas Memorial Fund was reported to amount to £38 12s. 1d. and the H. D. Madden Memorial Fund to £53 7s. 2d. The report stated that the committee had arranged for the purchase of a Chairman's badge.

Badge for the Chairman

Mr. POWDRILL said that a great deal of time and attention had been devoted to ensuring that the ultimate design of the Chairman's badge would be one that would meet with the full approval of the members. The order had now been placed, and it was hoped that the badge would be available in time for the next meeting of the Section.

On the recommendation of the Management Committee the following officers were appointed: Chairman, A. Pickard (Llanelly); Senior Vice-Chairman, H. Maycock (Holywell); Junior Vice-Chairman, K. E. Tiddy (Carmarthen); Members of Management Committee, J. F. Lloyd (Wrexham), J. F. Rust (Newport), J. H. Chapman (Swansea); Auditors, J. Elwyn Jones (Rhondda) and S. L. Filer (Tredegar); Hon. Secretary, K. E. Tiddy.

Mr. POWDRILL, proposing the election of Mr. Pickard as Chairman, said his own year of office had been so happy that he would relinquish the duties with reluctance. He knew of no-one in the Section who he would wish more heartily to succeed him than Mr. Pickard, whom he had known as long as anyone in the room. He had worked with him in Yorkshire, and since they came to Wales Mr. Pickard had given enthusiastic support to the organisation. His work as Secretary of the Education Committee had been of outstanding merit; he was probably the best Education Secretary they had ever had.

Mr. W. CLARK JACKSON, seconding, recalled that when Mr. Pickard came to Wales nine years ago conditions regarding output at Llanelly were none too good. The town was in the throes of what amounted almost to an industrial revolution so far as the demand for gas was concerned and the works was completely inadequate for the requirements of the district. Mr. Pickard had made a great success of his job and the works was now capable of meeting, or very nearly meeting, the requirements caused by the industrial demand for gas. He had served an arduous apprenticeship on the Council of the old Association and on the Management Committee of the new Section. He had been a very good Education Secretary and had taken great pains to bring about, in Wales, improved conditions whereby the younger men who were entering the industry could look forward to much greater facilities than had been available in the past. He was a capable engineer and administrator and a good committee man, having served on most of the district committees. He was not quite such a good golfer, though even in that direction there had been improvement in the last year or two.

On being inducted into the chair Mr. PICKARD expressed thanks for his election. His work had given him great happiness and he had found his Welsh colleagues good company and hard working engineers.

Mr. Maycock's election as Senior Vice-Chairman was proposed by Mr. O. P. Cronshaw (Rhyl) and seconded by Mr. H. Blythe (Colwyn Bay), and that of Mr. Tiddy as Junior Vice-Chairman was proposed by Mr. F. Dupont (Brecon) and seconded by Mr. D. E. West (Merthyr Tydfil).

Presentation to Mr. Powdrill

The CHAIRMAN said one of his first duties was to present a silver salver to Mr. Powdrill as a token of their appreciation of his services during the past year. In acknowledgment, Mr. Powdrill said that adequately to express his thanks for so tangible a reminder of his year of office was beyond his powers of expression. He had enjoyed being Chairman, and the members had been very kind to him. He took the opportunity of expressing his thanks especially to the Management Committee and to Mr. Tiddy, who had put a lot of work into the Section as Secretary.

The meeting unanimously approved the election of one new member, Mr. A. S. Williams, of the Ministry of Fuel and Power Regional Office, Cardiff.

The **Chairman** then presented prizes to a large number of juniors in recognition of their successes in the examinations of the Institution of Gas Engineers and the City and Guilds of London Institute. He mentioned that in addition to the successes recognised on that occasion, there were 17 from North Wales, which would be suitably recognised next time the Section met in North Wales.

Mr. R. Miller (W. J. Jenkins & Co., Ltd.) then presented a paper on 'Treatment of Coke,' which will be published together with the discussion in a later issue of the *Journal*.

A vote of thanks was accorded to Mr. Miller on the proposition of Mr. D. E. West, seconded by Mr. C. G. Reeves (Wales Gas Board).

The **Chairman** made an appeal on behalf of the Benevolent Fund of the Institution of Gas Engineers, emphasising more especially the advantage to be gained by the Fund as a result of subscribers entering into covenant to pay their subscriptions for a period of seven years; the benefit to the Fund would be increased by about 80% in respect of each covenanted subscription.

The meeting was followed by the annual luncheon in the Ritz Ballroom, attended by about 150 members and guests.

Section's Proud Position

Mr. J. H. Dyde, President of the Institution, proposed the toast of the Wales and Monmouthshire Section, which, he said, in its new form, had developed into an organisation for the dissemination of technical, scientific, and educational information, for the promotion of discussion, and for the exchange of ideas among all members, however humble they might be. Such functions were of the greatest value to those who controlled the administration of the gas industry in that area. Its value to the Area Board was fully appreciated and he was sure that every member of the Section was proud of the position it held today and would strive to maintain its prestige and value.

He had been interested in the scope and subject matter of the papers presented for discussion during the year, touching as they did upon the work that had been done by expert committees of the Institution, notably the Safety Rules Committee. He was anxious that the work of such technical committees should be projected into the district sections so that it might be disseminated to the advantage of the working members and the technicians of the industry through the length and breadth of the country. He was also pleased to see that at their last two meetings they had had papers of wide scope and that more of their members were coming forward and presenting their ideas in the more informal atmosphere that one found in a district section meeting. At the main meetings of the parent Institution discussion very largely centred around a limited number of important people who had a superior knowledge of the various matters under consideration and it was a little difficult for a junior coming from a remote part of the country to say what he wanted to say. The papers presented at meetings of the Wales and Monmouthshire Section accorded well with the geographical nature and the problems associated with their area board. He referred especially to the consideration that had been given to small works and to the use of propane or butane/air mixtures. The Eastern Gas Board had many things in common with the Wales Gas Board, and there were many small works where they had seized on the idea of using propane or butane/air mixtures. He went with one of his technical officers to France last year to see what had been developed there in that connection, and he found that Mr. E. M. Edwards had been there before him, and that Wales already had certain plants on order.

He was interested also in the direct use of methane for town gas purposes from the mines at the Point of Ayr; that was another matter in which Wales had been pioneers. They had heard in other parts of the country quite a lot about the integration of coke ovens and steel works and the general extension of gas supplies to places which had not hitherto enjoyed such facilities, and he was anxious that during his year of office one of the technical officers of the Wales Gas Board should present to the Institution a paper dealing with the very important developments in that connection in Wales. He felt the industry should know about those developments, and benefit by them.

He thought he had said sufficient to indicate that so far as headquarters were concerned they were delighted with the way in which the Wales and Monmouthshire Section was developing and promoting the objects of the Institution. He congratulated Mr. Powdrill on a very successful year of office, and Mr. Pickard on his election to the chair. Since he came to Llanelly the output of the undertaking had trebled, and so also had the membership of the Section. He was profoundly interested in education, and if evidence were needed as to his enthusiasm for the work it was to be found in the record number of successes which had been recognised in the course of the morning's meeting.

Mr. PICKARD, in responding, said that ever since its formation originally as the Wales and Monmouthshire Institution of Gas Engineers the Section had striven to follow the precepts of the parent Institution and to encourage its members to give better service, and to train themselves to give that service. While they had not the honour of the company of any founder members, they had a group of four members of very long standing; he referred to Mr. Prosser Jones, Mr. Barton Grainger, Mr. H. Butterworth, and Mr. W. Clark Jackson.

Values Confused

Dr. A. B. BADGER, Industrial Relations Officer of the Gas Council, and himself a native of Llanelly, proposed the toast of 'The Town and Trade of Llanelly,' coupling with it the name of the Deputy Mayor, Councillor Frank Griffiths. Throughout the country generally, he said, the theory of values had become hopelessly confused and there was need to find the right attitude towards work, for no matter what 'ism' one paid tribute to, economic laws were relentless and no amounts of political doctrine could alter that fundamental fact. 'If we as a nation regarded work as a privilege and used our talents and ability to their best purpose,' he continued, 'I think we should be able to close the dollar gap tomorrow.'

Councillor FRANK GRIFFITHS, in reply, said that big industrial changes in which the gas industry would play an important part were impending in Llanelly. The 300% increase in gas output in the past eight or nine years was a remarkable achievement when account was taken of the fact that the works was built on a site that did not allow much room for expansion. If it could be assured that the same progress was being made elsewhere there could be complete confidence in the industry's capacity to meet future demands so far as man-power and materials allowed.

Mr. J. POWDRILL proposed the toast of the visitors, among whom he mentioned Mr. Dyde, Mr. R. N. Quirk (Ministry of Fuel and Power), Major G. C. Hyde (Ministry of Fuel and Power), Dr. Badger, members and officials of local authorities, and Mr. S. F. Ponting and Mr. S. R. Robinson (of Morris Motors, Ltd.).

Developing Gas Supply

Mr. R. N. QUIRK, responding, said that one of his pleasantest memories was that of coming to Wales with Major Hyde to discuss with leading people in the gas industry the question of developing gas supplies for the various trading estates that had grown up in the area. He recalled that it was Major Hyde who many years ago convened the original working parties which investigated the whole question of the gas grids in the east and west portions of South Wales. He felt the Wales Gas Board was to be congratulated on the part it had played in bringing into being the very important link between the new coke ovens at Nantgarw and the gas grid in that part of the country.

In the afternoon the members paid a very interesting visit to the Nuffield Radiator Works of Morris Motors, Ltd., at Felinfoel. Tea was served at the close of the tour, and thanks were expressed to Morris Motors, Ltd., for the opportunity of inspecting the works.

Industrial Fuel Prospects

The Combustion Engineering Association has arranged a conference on the subject of 'Meeting the Fuel and Power Shortage,' on October 9 and 10, at the Dorchester Hotel, London, W.1. At the opening session the chair will be taken by the President of the Association, Mr. P. A. Sanders, C.B.E., D.L., J.P., and addresses will be given by the Minister of Fuel and Power, the Rt. Hon. Philip Noel-Baker, and Sir Hubert Houldsworth, Chairman of the National Coal Board.

Among those who will address the conference are Sir John Charrington (Chairman of the Chamber of Coal Traders); Sir Archibald Forbes (President of the Federation of British Industries); Sir Ernest W. Smith (Chairman of the Industrial Coal Consumers' Council); Sir Ewart Smith; Mr. W. L. Boon, O.B.E.; Mr. Oliver Lyle; and Mr. B. E. A. Vigers.

The Association has called the conference in response to requests from large industrial consumers that a conference should be held at high level to discuss ways of meeting the situation both during the coming winter and in the future. The Association had the benefit of consultations with the Federation of British Industries and the National Union of Manufacturers.

FESTIVAL FLOODLIGHTING IN KENTISH VILLAGE

A display of floodlighting by gas was the contribution made by the South Eastern Gas Board to the Festival of Britain celebrations at Tenterden in Kent. Four places of local and historical interest were illuminated—St. Mildred's church, St. Michael's church, East Cross Gardens, and Swift's Cottage. Low pressure lamps in unobtrusive positions were used and, as the accompanying photograph of St. Mildred's church shows, some beautiful effects were obtained.

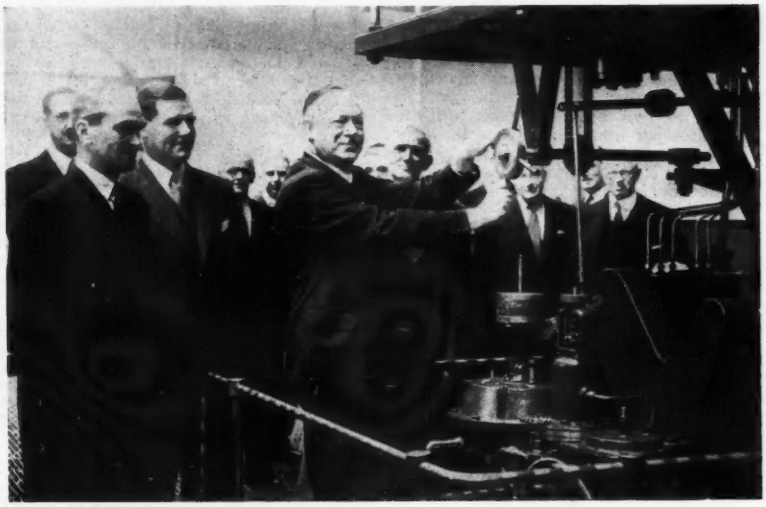
Pipeline Corrosion in Sweden

Although it is interesting to hear that others have troubles similar to our own, it is even more to the point to learn of their successful methods of dealing with them. This report about a pipeline in Sweden, sent to us by F. A. Hughes & Co., Ltd., not only rings a bell here but also succeeds in answering it and in suggesting a moral.

In 1942 a 150 mm. dia. C.I. watermain was laid at Backavägen by the Gothenburg Waterworks and for five years it functioned satisfactorily. In July, 1947, however, a leak occurred and no sooner had this been repaired than another took place, and another. In fact, by the end of that year there had been six leaks in as many months and the all-too-familiar story of underground corrosion was well under way. In the next 18 months the number of leaks rose by a further ten and, eventually, an F. A. Hughes engineer was asked to go over and investigate. On October 24 he arrived; on the following day he made his survey, on which he based his recommendations; and by the evening of October 26 the job of controlling corrosion, by the installation of 'Elektron' magnesium anodes, had been completed.

And there the matter ended, until recently, when F. A. Hughes received a congratulatory letter from the Gothenburg Waterworks together with a graph giving the full history of the main. This showed that, from the date of providing 'Guardion' cathodic protection by means of 'Elektron' magnesium anodes, no further leaks occurred. Obviously, major replacement costs were saved. But what, ask Messrs. Hughes, if 'Guardion' cathodic protection had been available when the pipeline was originally laid? The expense of installing it then would have been only a fraction of the repair costs for the 16 leaks which took place over those two troublesome years.

MAIDSTONE'S MAIN PROJECT



ON Sept. 18, 1951, the *Journal* witnessed Sir Edgar Sylvester opening 27 miles of high-pressure main from Maidstone to the Weald of Kent. Three major considerations brought about this main. The existing Mid-Kent high-pressure distribution system was seriously overloaded; Maidstone's system was insufficient to meet increasing demands for gas in the southern part of the Borough, and the decision to close down the small works at Tenterden, Cranbrook and Hawkhurst which had ceased to function economically. The main, which was laid by William Press and Son, Ltd., also affords inter-connection between the Maidstone and Mid-Kent high-pressure systems, thus providing a stand-by for either Maidstone or Snodland. In order to supply the new main a compressor has been installed at Maidstone by The Bryan Donkin Co., Ltd., which has a capacity of 200,000 cu.ft. per hr. at 20 lb. per sq. in.

A 36,000 cu.ft. spirally-guided holder has been installed at Cranbrook and a similar one is now being erected at Tenterden. Eventually all holder stations will be controlled from a central point in Maidstone. After the ceremony Sir Edgar and party proceeded to Dover to inspect the site for the reconstruction of the works.

Our photograph shows Sir Edgar Sylvester, Chairman of the Gas Council, turning on the supply. Standing immediately behind him are Mr. J. D. C. Woodall, Maidstone Group Manager, and Mr. W. K. Hutchison, Chairman of the South Eastern Gas Board.

Inauguration of

NANTGARW COKE OVEN PLANT

25 per cent. Increase in South Wales Gas Supplies

THE Nantgarw plant, put into operation this month, is the first coke oven scheme on an entirely new site to be completed by the National Coal Board. It is situated in the Taff Valley about seven miles from Cardiff, near the Nantgarw colliery, which is being newly developed. Since the war South Wales has been importing from other districts blast furnace and industrial coke at a rate of about 4,000 tons per week and the demand is increasing. The new plant will help to meet this demand in part, and will replace some of the smaller and obsolete coke oven capacity in addition to adding materially to the available gas supplies via the newly constructed East Glamorgan gas grid of the Wales Gas Board. The plant is planned for a capacity of 1,500 tons of coal per day to produce about 1,100 tons of coke; in the oven section, however, the installed capacity is arranged for 1,000 tons of coal per day initially, and as soon as this is in operation the remaining ovens will be built.

Coal is received from the washery at the Nantgarw colliery or as washed coal from outside collieries. The coke oven coal handling system is equipped to handle coal below 2 in., and large coal above this size is crushed at the colliery washeries. Initially the washery has a capacity of 350 tons per hour and provision has been made for a duplicate unit.

There are 10 blending bunkers, each of which holds 200 tons. From these a collecting belt first passes over a magnetic pulley—which removes any tramp iron—and then delivers the coal to either of two B.J.D. hammer mills of 160 tons per hour capacity each. From the hammer mills, conveyors of 160 tons per hour capacity run to the top of the service bunker and deliver the coal on to a revolving shuttle belt. The service bunker has a capacity of 3,000 tons and is divided into two compartments the lower slopes of which are glass-lined to promote easy discharge of the coal.

Coke Oven Battery

The coke oven battery consists of 48 ovens (to which a further 24 are soon to be added) arranged in independent blocks of 12 so that when the ovens eventually undergo repair not more than one-sixth of the total plant capacity need be lost and gas supplies can thus be maintained. The daily throughput is 1,000 tons of coal (containing 9% of moisture) and the coking time 18 hours. The load per oven is 15.7 tons of coal as charged. The ovens are of Simon-Carves standard underjet twin flue compound type with triple compartment regenerators. They are 44 ft. 7 in. long over the sole × 12 ft. 6 in. high × 18 in. mean width. They are arranged for heating either by producer or coke oven gas.

At the bunker end of the battery is a service station for oven doors, equipped with racks arranged so that doors may be lowered, by means of 7½ H.P. Morris hoists, to a horizontal position for servicing. At the chimney end there is a ram changing station with spare ram beam and leveller and guides and rollers. Door service hoists are also provided on the pusher machine and coke guides respectively.

Each oven has two ascension pipes (both of which are fitted with steam ejectors to ensure smokeless charging), and with liquor sprays in the bends. Each block of 12 ovens has collecting mains on both ram and coke sides with cross-over connections. Two gas main bridges carry four sets of foul mains over the ram track to connect into the common main before the by-product plant. Each gas collecting main is pressure controlled, so that eight Askania regulators operated by pumping sets are located in control houses on the gas main bridges. Each main is fitted with a 16 in. bore flare pipe with quick-acting liquor sealed valve.

The pusher machine is of Jas. Buchanan's manufacture. The coke side door-extractor is also of Buchanan's manufacture and, as in the case of the pusher machine, the extractor head can be slewed through 90° and is fitted with Hopkinson latch screw gear. The machine operates with a trailing guide of the retractable type.

The coal charging lorry is of Simon-Carves design. This machine is of the portal type with telescopic spouts and adjustable filler rings, vertical chain drives to the long travel shafts, and with the motors and gearing mounted on the upper platform.

The hot coke car is also by Simon-Carves, the locomotive being an 80 H.P. Greenwood & Batley machine. An Avery ticket-printing weighing machine is incorporated in the coal lorry track below the service bunker.

Coal spillage is handled by a Morris hoist of the self-landing and locating type, which collects spillage from a hopper on the pusher machine and returns it to any one of the four charging car hoppers. This hoist, which extends over both the ram and coke sides of the battery car, can also be used to convey spares to the oven tops—including, if necessary, one complete hopper for the charging car.

Between the coke guide and the pusher machine an electronic link is fitted and consists of a transmitting lamp on the guide and a receiver on the ram. Unless the guide is properly located with the door removed no signal can be transmitted, and unless the ram is correctly placed to receive the signal it cannot operate.

After quenching, the coke is tipped on to a wharf 200 ft. long, whence it is run off to the conveyor through hand-controlled gates.

By-Product Plant

The by-product plant up to the purifier inlet is designed to deal with about 16.5 mill. cu.ft. of coke oven gas daily. This plant has been supplied by Simon-Carves and is arranged on the indirect ammonia recovery system to manufacture semi-pure 25% concentrated ammonia liquor. The gas leaving the ovens in the common foul gas main has the tar and liquor trapped off at the downcomer into a tar catch tank, which is of the duplex mechanical type and provided with slowly moving scraper conveyors immersed in the liquid.

The primary gas coolers are of the vertical tube type by C. & W. Walker, Ltd., and three are installed—each of 25,500 sq. ft. capacity and one as stand-by, a fourth to be added when the further 24 ovens are installed. Water supply is controlled by thermostat operated valves. The exhausters are of the Richardson - Westgarth Brown-Boveri type, driven by steam turbines using steam at 200 lb. per sq. in. and passing it out at 25 lb. per sq. in. for process use. A secondary gas cooler of the same type as that of the primary coolers follows the exhausters, but this has the casing strengthened (since it is on the pressure side), and a false tube plate so that the tubes can be washed with light tar if required.

De-tarrers

There are two Simon-Carves electro-de-tarrers with independent static rectifier units, and four Simon-Carves static ammonia washers of six stages each arranged to give two streams of 12 stages in parallel. Cooled virgin liquor from the primary gas coolers is added at the suitable intermediate stage. Tower scrubbers 102 ft. high × 12 ft. dia. are provided for benzole scrubbing.

After the scrubbers the return gas main branches back to the ovens and the remaining (or total) gas goes to the purifiers and is diluted with producer gas, through automatic mixing valves, to 475 B.Th.U. per cu.ft.

The purifiers, which are by C. & W. Walker, Ltd., are in two streams of five boxes, with space for a third, and each stream is designed to deal with 6 mill. cu.ft. of gas per day. The boxes are of the elevated cast iron type, 40 ft. square, arranged for split-flow working, and a clearance of 14 ft. is arranged beneath the boxes so that a 'Hi-Lift' Chaseside shovel can be used to handle the oxide.

After leaving the purifiers the gas is washed for naphthalene in a static washer, measured by a Connersville meter, and compressed by Bryan Donkin compressors into the gas grid main. The compressors at present installed are:—Two steam-driven machines, each having a capacity of 2 mill. cu.ft. per day, with volumetric controls; one electrically-driven machine of 4 mill. cu.ft. capacity; and one electrically-driven machine of 6 mill. cu.ft. capacity. Space has been allowed for two 6 mill. cu.ft. machines to be added.

The crude benzole plant is of the conventional automatic type using petroleum wash oils, and a 14,000 gal. motor spirit still is provided to handle all the crude benzole made on site plus 3,000 gal. a day from outside sources. A 'pures' still can be added later if needed.

River water is brought into the plant from a riverside pump house containing an 18 ft. dia. Brackett cup type of screen and two 75,000 gal. per hour Pulsometer borehole pumps which deliver to head tanks on the coke oven service bunker. This water is used chiefly for gas coolers, gas producers, at the ovens, and eventually for washery make-up. For the benzole plant and small tube coolers a clean water circuit is provided by the use of pit water. Cooling towers are employed on both circuits. For the boilers, town water is used.

Three boilers of the Simon-Carves three-drum water tube type have been provided, each having an evaporative capacity of 25,000 lb. per hour at a pressure of 200 lb. and steam temperature of 550°F. Chain-grate stokers of the International 'L' type are used for firing coal and coke or 100% coke, and coal gas burners are fitted into the side walls for gas firing. A pendant type of superheater, supplied by the Superheater Co., Ltd., is included with each boiler, together with an economiser of the gilled-tube type by E. Green & Son, Ltd. The forced and induced draught fans are of Davidson's manufacture.

Gas Producers

The ovens are arranged to be heated either by coke oven gas or by producer gas. Six producers will be required for 72 ovens but, initially, two only have been installed, the remaining four to be added as the gas demand rises. Producer gas is also used to dilute the coke oven gas to a standard calorific value, but before use it is cooled and cleaned.

The producer plant is by The Power Gas Corporation, Ltd., and is designed to gasify oven coke, sized ⅛ in.- 2½ in., at a rate of 33 tons per 24 hours for each unit, to produce a gas with calorific value of 130 B.Th.U. per cu.ft. Each unit is of the mechanical type.

For each unit the fuel feed arrangement consists of a 33 ton overhead bunker into which coke is delivered by belt conveyors and tripper gear, and from which coke is fed to the producer by means of Power Gas Corporation gravity feed equipment.

Gas leaving the producer is cooled in a Lymm washer cooler. From two such washers the gas streams converge and pass through one of two Theisen disintegrator gas cleaners, and thence through a cyclone water separator before having the pressure boosted by centrifugal compressors. Two compressors are provided, either of which is capable of dealing with the full output of gas from the plant and delivering it at a pressure of 6 in. W.G. Part of the gas is taken from the outlet of the main compressors, and boosted to 24 in. to be used for dilution purposes; the remainder passes to a 50,000 cu.ft. single-lift gasholder en route to the coke ovens.

Coke Handling Plant

The coke handling plant has been supplied by Fraser & Chalmers Engineering Works (General Electric Co., Ltd.). Its rated capacity from the coke wharf is 80 tons an hour, but certain conveyors and screening units are designed to cater for an additional feed of 50 tons an hour from a future coke store, to give a total of 130 tons an hour. The plant provides for rail wagon loading of furnace coke and de-breezed domestic coke; lorry loading, bagging, and weighing of de-breezed coke; and both wagon and lorry loading of breeze. Provision is also made for the loading of domestic coke into wagons without de-breezing, for conveying it to the storage bunkers of the producer gas plant or storing it at a later date in the yard. Cutting facilities equal to 80 tons an hour have also been installed at the plant for use if required.

In the normal sequence, quenched coke from the ovens runs from the 201 ft. long wharf through finger gates on to a 42 in. wharf conveyor, on to a 42 in. cross conveyor at right angles, and thence to the tail-end of an inclined 42 in. belt conveyor which elevates the coke to the primary screen house and delivers it to a 48 in. × 5 in. shaft rotary grizzly screen designed for 2½ in. separation. Two screens are mounted side by side on a travelling carriage so that either may be located below the conveyor head with the other as standby. If necessary, the wharf on the belt conveyor may be by-passed to a Cort cutter and thence to a 36 in. belt conveyor to the domestic screens. This conveyor feeds on to a 72 in. × 120 in. double-deck Gyrex screen fitted with 1½ in. and 2½ in. mesh cloths. The minus 1½ in. coke is delivered on to an inclined 24 in. belt conveyor feeding a 60 in. × 120 in. double-deck Gyrex screen fitted with ⅜ in. and ¼ in. mesh cloths. Fifty-ton concrete bins are provided for the five sizes.

Screened domestic coke is withdrawn from the bins and delivered to two single-deck Gyrex de-breezing screens. One screen delivers to railway wagons by means of hinged chutes, while the other discharges to a chute fitted with a deflector valve and designed to deliver either to a Belle Isle bagging and weighing machine or direct to lorries.

Maximum flexibility of operation and control is a feature of the plant, and electrical interlocking sequence starting is provided to enable the various functions of the plant to be controlled from six separate remote control stations working in conjunction with interlock switches operated by the deflecting valves in the two-way conveyor feed chutes.

Power Supply

The supply of electric power for the coke ovens is taken from the main sub-station at the colliery. This sub-station is supplied from the Upper Boat Power Station of the B.E.A. by two overhead lines at 33 kV. Two 4,500 kVA transformers situated in an outdoor sub-station step down the voltage to 3,300 volts, and the fault MVA of this voltage at the colliery sub-station is 150. The supply to the coke ovens is taken by a ring main and reactors are included in the circuit to reduce the fault MVA to 75 and thus enable standard hand-operated 3,300 volt switchgear to be employed.

There are three main 3.3 kV sub-stations: one at the coal crusher house, which supplies the necessary power for the coal handling and coke handling plants; another at the gas producer house to provide high-tension power for the large Theisen disintegrators; and a further sub-station beneath the main coal bunker for the supply of the remainder of the plant, which includes coke ovens, gas compressors, by-product plants, and benzole plants. All high-tension switchgear is of the Reyrolls truck type with vertical insulation.

Except for the low-tension power in the coal bunker sub-station, all low-tension distribution is carried out by means of B.T.H. switch-fuse gear of the HRC type and with a rupturing capacity of 25 MVA. For the coal bunker sub-station the gear is of the Ellison oil-break type—to provide easy reclosing, etc., for the trolley wire feeds. All feeds, both high-tension and low-tension are—where of sufficient importance—duplicated in an endeavour to maintain continuity of supply under the most adverse conditions likely to occur.

Workshops and Administration Buildings

The workshops and stores are housed in one long building; and the fire station, domestic and coke sales office, sample room, and timekeeper's office are incorporated in the same block.

The administration building has been designed both to house the staff of the carbonisation department and to provide a colliery group office. For this purpose a double-storied building, about 160 ft. long × 33 ft. wide, with a laboratory annexe, has been erected (architects, Sir Percy Thomas & Son, Ltd.). This building is situated at the entrance to the plant and, at the colliery entrance, a large pit-head baths building is about to be erected, thus making a rectangle of considerable size between the main site entrance and the colliery and coke oven entrances, respectively. This rectangle is attractively laid out with lawns and flower beds.

The complete floor at the oven sole level in the service bunker is allocated to men's quarters. These quarters consist of a messroom, locker room and showers, wash basins, etc. Since the main canteen—to be associated with the colliery baths—will not be available for about two years, the messroom has been arranged as a canteen for the time being. Accommodation has been provided for about 50 men and cooking arrangements are installed; but, in due course, this canteen will revert to its original purpose.

A subsidiary locker room is provided for the by-product men in the exhauster house.

The Divisional Carbonisation Manager, Mr. R. J. Barritt, and his staff were responsible for supervision during erection of the work of the contracting firms, and for the work carried out by direct labour (Engineer, Mr. S. A. Scott). The management of the plant is in the hands of Mr. E. A. West, Deputy Divisional Carbonisation Officer.

The Inaugural Ceremony

The new plant was formally inaugurated by the Minister of Fuel and Power, Mr. P. J. Noel-Baker, on September 20, in the presence of Lord Hyndley, until recently Chairman of the National Coal Board, Sir Hubert Houldsworth, the present Chairman, Mr. T. Mervyn Jones, Chairman of the Wales Gas Board, and a representative gathering from all sections of the fuel industries.

Mr. G. E. Aeron Thomas, Chairman of the South Western Divisional Board, who presided, read a message from the King which stated: 'Please convey my sincere good wishes and those of the Queen to all who have been concerned in constructing and installing your new coke ovens, to all who work at Nantgarw, and to all your guests assembled today to celebrate the inauguration of the plant.

'I deeply regret that I am unable to be present for the opening of the ovens, as I had hoped to be, and to inspect for myself this important new development in the coking industry. However, I am happy to know that the work of building has been successfully completed and that, with the effort and aid of the coal mining industry in South Wales, these new ovens will make a valuable contribution to our country's welfare and industrial strength and will help us to maintain our historic place among the free peoples of the world.'

Having read a reply which had been sent to His Majesty, the Chairman said this was the first major coke oven development scheme completed in Britain by the National Coal Board. Of the fruit of those labours he could not but think that Wales would be justly proud. The plant would make a tremendous contribution to coping with the ever increasing demand for fuel and power arising from the industrial expansion in South Wales, and opened up a new vista of well-being over a wide area.

Nowhere else was there a coke oven plant which presented so striking and imposing an appearance and which fitted in so well with such a magnificent background. It was a triumph of modern industrial planning, and on behalf of the Divisional Board he expressed appreciation of all—contractors, officials, and workmen—who had contributed to the erection of that notable industrial structure; he also referred with gratitude to the part played by Powell Duffryn, Ltd., in the early stages of the scheme.

Mr. Noel-Baker, having given a signal for the discharge of an oven, said that in the future the demand for fuel and power resulting from the increase in industrial production would press hard on all available supplies. The miners had made a splendid effort and in the last five weeks had produced 1,032,000 tons more coal than in the same period last year, of which South Wales had done more than its share. Nantgarw was the focal point of the new gas grid which was being developed in the eastern part of South Wales. The grid would cover the area of a large number of gas undertakings, and the supply of gas would be greatly enhanced and improved.

The opening of the new plant marked a technical advance which industry urgently required but which would have been impossible without the nationalisation of the industries concerned. The plant would ultimately add 25% to the gas supply of South Wales. It was the first great example of the co-ordination of fuel and power jointly planned and executed by the two nationalised industries, coal and gas. When the scheme had been completed it would produce 1,100 tons of first grade coke per day, suitable both for blast furnaces and for the domestic market, apart from a wide range of by-products.

From the opening base the party proceeded to the vestibule of the administrative offices, where a commemorative tablet was unveiled by Lord Hyndley. After tea, many of the visitors made a tour of the plant.

South Western Integration

THE South-Western Gas Board has a long term plan to reduce the number of gas manufacturing centres in the Region from 104 to about 20. The bigger centres will mean gas production at lower cost. Production centres at Bristol, Weston - super - Mare, Bath, Gloucester, Swindon, and Cheltenham are to be extended.

Three months ago the Shepton Mallet station went out of operation, when the district was brought into the Weston-super-Mare system, and in a year or two the Bristol system is to be extended to Downend and Chipping Sodbury. A transmission main linking Swindon and Bath is also planned. Many new links between the large gas manufacturing centres are planned and these will make possible the interchange of gas to share the load if the need arises.

New mains will be built from Bath to bring Devizes, Bradford, Trowbridge, and Midsomer Norton into the system. The Gloucester system will eventually cover the whole of Forest of Dean. The programme depends on available capital, labour and raw material supply and may take between 10 and 20 years to complete.

Newport (Mon.) won the local Road Safety Silver Cup for the best shop window display in a competition organised by the Road Safety Council. The display depicted the incident of Sir Walter Raleigh placing his cloak on the ground for Queen Elizabeth.

NURSING EXHIBITION AT BRISTOL

Our photograph shows the exhibit of the South Western Gas Board at the West of England and South Wales Hospital Management, Nursing and Complete Health Services Exhibition and Conference, held at the Victoria Rooms, Bristol, from September 10-14. The stand carried 'live' hot water appliances, and included an installation comprising a bed-pan washing unit, operated in conjunction with an Ascot 901 Heater. A feature that caused considerable interest was the paper sculpture model of a nurse inserting a thermometer in Mr. Therm's mouth. A triangular pillar carrying three illuminated gas signs supported the canopy with recessed lighting.

PUBLIC LIGHTING PROGRESS

Brighton Conference Reveals Steady Development

ATTENDED by more delegates than ever before, the 27th annual meeting of the Association of Public Lighting Engineers, held this year at Brighton, provided the 1,100 engineers present with a programme wide in scope and rich in interest. This three-day event (September 18-21) embraced five papers on widely differing aspects of public lighting, in addition to the showing of special films and the address of the newly inducted President, Mr. **H. Price-Jones,** M.ENG., M.I.C.E., M.I.E.E., M.INST.F., Mid-Sussex Manager of the South Eastern Electricity Board.

The latter's address, strongly flavoured with historical reference and quotation, concentrated its more up-to-date passages on the vexed question of standardisation. To reduce the art of street lighting to the level of the mere installing of 'off the shelf' standardised equipment would, he suggested, surely blunt interest and incentive and lower the quality of the human intake to the street lighting world. On the other hand, a desire for individual choice should not blind us to the defects and limitations which currently exist in the street lighting systems of the country. It was impossible to avoid the conclusion that a substantial reduction in the high total of street accidents could be effected by better and more uniform lighting standards. In Mr. Price-Jones' view, the problem could best be approached along the following avenues: (i) The establishment of standards of lighting uniformity; (ii) improvement in the quality of equipment and reduction in the variety of types; and (iii) some means of co-ordination whereby violent changes in the type and/or colour of lighting in adjacent sections of the same road might be avoided.

Equipment Too Varied

The first point—lighting uniformity—had been dealt with adequately in the new British Standard Code of Practice, produced by a Joint Committee of the I.E.E. and the B.S.I. Under the second head—quality and variety of equipment—there was undoubtedly too great a range of lighting equipment in common use. Mr. Price-Jones suggested that both in lighting columns and lanterns variety and a closer measure of aesthetic agreement should bring a lowering of initial and maintenance costs. The report of the committee for the standardisation of engineering products set up by the Ministry of Supply in 1948 under the chairmanship of Sir Ernest Lemon pointed out that a particular difficulty existed in the fact that, although the manufacturers had their trade associations for the unification of their ideas, the users in many cases had no corresponding organisation for agreement on and presentation of their technical requirements. The A.P.L.E. was well suited for such a role, but would need some strengthening and extension. At provincial centre meetings, local as well as national problems could be discussed and proposals submitted for examination by functional committees set up for the purpose by the Association. The full-time paid staff of the Association was purely administrative and for the consideration of technical matters reliance would have to be placed on such voluntary committees. By granting facilities to such of their officers as might be invited to serve, local authorities and similar bodies could greatly assist the Association in broadening its field of useful and progressive activity.

Pursuing his third point, Mr. Price-Jones said that one of the most frequent subjects of criticism by the road user was the variety of colours of light and types of lantern used along adjacent sections of the same road. Apart from the unpleasantness to the eye, such sudden variations were also a source of danger. He expressed a purely personal view in hoping that the rapid development of the fluorescent lamp or the intelligent extended use of lanterns using tungsten filament lamps might ultimately eliminate the present colour difficulties associated with sodium and mercury light sources. In the meantime it should not be beyond the wit of man for suitable agreements to be reached between adjacent lighting authorities whereby changes in the type or colour of lighting could be made less abrupt.

Association's Field Broadened

Later the President remarked that the revision of the Articles of Association whereby the nationalised gas and electricity industries and manufacturer friends became eligible for full membership had greatly strengthened the Association and broadened its field. On the educational side work was proceeding towards the establishment of a diploma in public lighting. It was hoped that this diploma would be recognised for purposes of local government promotion and salary grading. Unless unforeseen difficulties arose it was expected that the first diploma examination would be held either in the autumn of 1953 or the spring of 1954.

During the year the Association had made steady progress—96 newly elected members bringing the total membership to 617. The latter figure included 11 gas board and 14 electricity board group members.

Following the Presidential Address, delegates were treated to an enlightening address on 'Maintenance—Organisation and Methods,' given by Mr. **Chas. C. Smith,** A.M.I.E.E. Although an electrical engineer, the author's views and experience (the latter based on work at Liverpool) were of considerable interest to all lighting engineers, regardless of the source of lighting employed.

Maintenance Requisites

Mr. Smith took as his essential requisites of adequate maintenance the following operations: (i) Nightly inspection or patrol; (ii) winding and setting of control equipment; (iii) cleaning; (iv) replacement of bulbs and mantles; (v) periodic photometric testing; (vi) general attentions. Having dealt with the exact interpretation of these items in some detail, the author turned to a consideration of how this necessary work could be regularly and efficiently carried out to a reasonably organised programme.

The scheme suggested was that which is, in part, at present in operation in Liverpool and which it is hoped to apply in its entirety as soon as is possible. The whole area, which comprises some 43 square miles and over 30,000 lamps (excluding staircases, traffic signs, etc.), lighting approximately 960 miles of streets and passages, will be covered from three outside depots and a headquarters.

Nightly Inspection Advocated

It was the author's opinion that a nightly inspection of every lamp, as near to lighting time as practicable, was imperative. The suggested scheme was therefore based on this fact and was built up or developed upon a unit area, *i.e.*, a lamp attendant's district, which was carefully allocated on a satisfactory balance between the number of lamps included and the travelling distance involved, so that an evening inspection did not exceed approximately 2½ hours, and the lamp cleaning period, by rota, was approximately 10 days. The whole area was therefore divided up into lamp attendant's districts which were grouped together in sixes to form sections each of which was the responsibility of a charge-hand lamp attendant. All the lamp attendants in a particular section were based on a central mustering station where they booked on and off, made out reports, received instructions and stores and kept equipment, and which could with great advantage be provided with a telephone.

The duties of the public lamp attendants covered the work involved under the headings (i), (ii), (iii) and (iv) above, in respect of group 'B' lamps only. Their working day consisted of a morning period when routine cleaning and winding was done, and an evening period for inspection purposes when they reported at the mustering station 15 minutes before schedule lighting time, received any special instructions and proceeded on the evening inspection of their district which comprised, on the average, 250 lamps plus group 'A' lamps, the latter for evening inspection only. Should they encounter an unlighted lamp they lit same, if possible, by operating controller by hand, replacing first fuse or bulb or similar minor defect, failing which they reported the position on the time sheet, or in the case of a dangerous position, immediately by telephone. Attendants in outlying districts were provided with a special bicycle fitted with telescopic ladder.

Mr. Smith explained how the time sheets made out by each public lamp attendant were divided, one portion,

which referred essentially to the daily routine work on the district, being sent to headquarters for the administrative staff ,and the other passed direct to the depot charge hand who immediately issued what work he could to the depot maintenance personnel, and passed the remainder by telephone to headquarters.

The depot charge hand had a small van fitted with a 14-ft. ladder and a complete tool kit for dealing with most of the low mounting height repairs.

Also based directly on the depot were public lamp maintenance attendants of two types: Those looking after high mounting height lamps which in the case of Liverpool were all electric, who were provided with push ladders, and those looking after low mounting height gas lamps who were provided with tricycles.

The former were given districts which ensured a cleaning period of not more than 14 days, while the latter were on the scale of one per lamp attendant's section, *i.e.*, approximately 1,200 lamps.

Thus, the personnel actually based on a maintenance depot consisted of: (a) Depot charge hand, provided with light van; (b) approximately three public lamp maintenance attendants for Group 'A' electric lighting (provided with push ladders); (c) approximately three public lamp maintenance attendants for group 'B' gas lighting (provided with tricycles); (d) approximately three charge hand lamp attendants (for reporting purposes only, as they will normally operate from their mustering station).

Testing Strength of Glass

One item of particular interest to delegates, in view of the new information given on a basic material for public lighting, was a lecture, film, and demonstration entitled 'Glass—an Old Material in a New Light.' Its author, Mr. **P. M. Davidson,** B.SC., showed two films —one on 'The Manufacture of Polished Glass Plate,' and the other on 'Armourplate and Armourlight.'

'Armourplate' is the name given to fully toughened polished plate glass made by Pilkington Brothers, Ltd. The toughening process can be applied also to other glasses such as polished black glass and rough cast. Even moulded and blown glasses are also treated by the toughening process, but the degree of toughening possible depends on the thickness of the glass, and also the design of the article. Moulded and blown glasses are known as 'Armourlight.'

It is, perhaps, of interest to describe certain tests shown in the film which gave some idea of the enhanced performance which 'Armourplate' can give when compared to similar annealed polished plate glass. It was demonstrated that a piece of 'Armourplate' ¼ in. thick and measuring 45 in. long by 10 in. wide, supported only at the two ends on wooden blocks, would carry a load of fully 400 lb. A piece of annealed polished plate glass of similar dimensions fractured under a load of about 70 lb.

A metal ball 1.68 lb. in weight required to drop from a height between 8 ft. and 14 ft. in order to fracture a piece of ¼ in. 'Armourplate.' When ¼ in. polished glass was similarly treated, it shattered when the ball dropped from a height from 9 to 15 in.

Turning to thermal shock, Mr. Davidson said that if a piece of ¼ in. 'Armourplate' was placed directly on top of a one kilowatt Belling ring and on top of this was placed a similar piece of ¼ in. polished plate glass, after about seven minutes the plate glass fractured with the typical curling 'jigsaw' fracture, but the 'Armourplate' in contact with the stove was unaffected, even when water was poured on to the now hot glass.

Recent Advances

The paper given by Mr. **P. Crawford Sugg,** B.SC.(ENG.), A.C.G.I., M.INST.GAS E., F.I.E.S., 'Design and Use of Street Lighting Equipment in Relation to the Code of Practice,' dealt exhaustively with progress in gas street lighting. Commencing with a description of the rapid advance in lighting efficiency achieved during the past 15 years or so, the author examined in detail the factors contributing to this improvement, such as developments in burner design, air control, simplification in design, glazing, ease of cleaning, control equipment, reduced maintenance costs, etc.

The paper concluded with vigorous defence of modern street lighting by gas.

The gas industry, said Mr. Sugg, had many experienced street lighting specialists, who were prepared to survey any road and lay-out installations, either for new lighting or for the improvement of existing schemes, to ensure results in conformity with the Code of Practice. Particularly was experience available on the problems which arose where expenditure was limited and it was desired to make use of existing material to the greatest possible extent. Such re-modelling of an installation, of course, invariably involved the use of new lanterns, and some re-siting of columns and extra units, but this had been found to be an extremely economical process in comparison with other solutions to the problem, and this policy, which avoided the scrapping of good and serviceable material, was being adopted to an increasing extent. Apart from effecting obvious large savings in capital expenditure on lanterns and columns, heavy expenditure on erection, reinstatement, and numerous other charges were obviated. The improvement of visibility achieved in this way was very striking indeed, and little fault could be found with the daylight appearance of the transformed installation.

During the course of his address, Mr. Sugg used for demonstration purposes an 18 ft. × 14 ft. screen, decorated with the Festival symbol and containing six lanterns operated by switch control, provided by the Gas Council.

EXHIBITION OF EQUIPMENT

As in previous years, a feature of the conference was the staging of an outdoor display of modern lamp columns, specially erected by the manufacturers along Madeira Avenue which the Brighton Corporation had placed at the disposal of the Association for this purpose.

In order to give a complete appearance to the columns, which covered types used on both class 'A' and 'B' roads, gas and electric lanterns were affixed. This display was arranged solely for the purpose of inspection by daylight, the space available being insufficient to permit the manufacturers to give a true indication of street lighting as recommended. The lanterns therefore were not illuminated. A further feature of the display were the tower wagons, extending ladders, etc. The following notes give some indication of the exhibits of most interest to the gas industry.

Lamp Columns

Concrete Utilities, Ltd., pioneers of the concrete lighting column, exhibited a selection of standard designs and two of the latest designs for mounting fluorescent lanterns. The concrete finishes were specially produced to blend with any settings, whether in town or country, old or new, brick buildings or stone. All columns carried a 25 years' guarantee.

Poles, Ltd., exhibited a typical selection from the wide range of 'Adastra' sectional steel lighting columns, with a choice of hexagonal or circular columns for every purpose and all mounting heights. The designs had all been passed by the Royal Fine Art Commission. The columns were provided with lanterns loaned by many well-known manufacturers; accommodation for auxiliary equipment was provided inside the base without detracting from the appearance. These columns combined strength with lightness of weight and economy in the use of steel, and were composed of sectional units which nested one inside another, so that for storage and transport a complete column occupied only the space of its largest section. Hot spelter galvanising was the basic finish applied to all columns, the sections being coated with a layer of zinc inside and outside after manufacture. This finish provided great durability in all climates. The columns could be painted in any desired colours after galvanising.

The Stanton Ironworks Co., Ltd., demonstrated how it had been found possible to combine the Stanton spun process with prestressing. Columns are already being produced by this method at Stanton. Examples of two sizes of prestressed columns were on view at the exhibition, where visitors were furnished with impressive figures, by the Company's representatives, from tests made on these columns. The Stanton display included designs passed by the Royal Fine Art Commissions of England and Scotland, the columns possessing non-ferrous doors with Yale-type locks. In the unlocked position, the key served as a convenient handle which could not be removed until returned to the locked position; the lock was waterproof.

Stewarts and Lloyds, Ltd., exhibited a selection of their tubular steel lighting columns, consisting of four main types: (1) Bracket arm type, suitable for main traffic routes, with mounting height of 25 ft.; (2) shepherd's crook type, also suitable for main traffic routes, with mounting height of 25 ft.; (3) swan-neck type, suitable for roads other than main traffic routes, with mounting height of 15 ft.; (4) and pillar type, also suitable for roads other than main traffic routes, with mounting height of 13 ft. S. & L. lighting columns are supplied either

plain or fluted and examples of both styles were exhibited. The bulk of the designs—which are without added ornamentation and present a slim, clean outline—have been passed by the Royal Fine Art Commission. The columns on show were fitted with fluorescent, pendant, side entry and spigot-mounted lanterns, lent to the company by the manufacturers.

Range of Lanterns

William Edgar and Son, Ltd., are manufacturers of such street lighting equipment as the 'Rivercourt,' 'Eclipse' and 'Caxton' lamps, suitable for class 'B' lighting. The 'Eclipse' lamp featured a specially designed type of mounting for simple installation and easy maintenance. This firm also manufacture a variety of secondary and emergency lighting fittings, such as 'Way Out' and 'Exit' signs, both of popular box design with stencilled wording, and a very attractive association of etched glass panel set between two cylindrical burner boxes made of brass and finished coinage bronze.

Holophane, Ltd., exhibited the sodium cylindrical refractor. This unit enabled the correct angle of incidence of the main beams to the road surface to be maintained on gradients by rotation of the refractor cylinder, thus maintaining uniformity of road brightness and avoiding the glare conditions which are often encountered on gradients with normal type lanterns. The adjustment of the main beams could be related to any degree of road gradient, but from practical considerations it had been found that it is only necessary to calibrate the adjustment scale on the lantern to cover gradients up to 1 in 5, as this is the maximum inclination normally met in main traffic routes.

Parkinson & Cowan (Gas Meters), Ltd., introduced their Maxilla 'Festival' lantern for group 'B' lighting and displayed one of these units on a modern concrete column supplied by Tarslag, Ltd. This lantern had been approved by the Royal Fine Art Commission and placed on a stock list in connection with the Festival of Britain.

It had an elegant outline, and in conjunction with special Holophane heat resisting prismatic refractor plates and toughened figured glass panes, excluded from view mantles in outline and took on the appearance of a modern street lantern not requiring reflectors.

Gas consumption was controlled by means of a constant pressure governor and fixed nipple specially calibrated. One of the main features behind the design of the lantern was substantial reduction in maintenance costs as the prismatic plates were protected from the weather by plain or fluted glass cover plates which obviated the necessity for cleaning at more than monthly intervals. Clock winding operations could be isolated from cleaning operations, the control and ignition devices being neatly housed in a weatherproof controller box having an 'L' shaped door giving instant and easy access for these operations. Another feature was the ease with which this lantern could be glazed, as each glass panel slides into position and does not require any adjustment of clips. The door was fitted with a dual purpose catch enabling it to be closed and secured in one operation, and was fitted with an anti-gale stop restricting the opening angle to 130°.

William Sugg & Co., Ltd., displayed several examples of 'Southport' and '8,000' lanterns, notably in the exhibits of Stewarts & Lloyds, Ltd., and Stanton Ironworks, Ltd. It is claimed that these two lanterns, wherever they are substituted for older lanterns, will provide greatly increased visibility with the least expenditure as to both capital and maintenance charges. At the same time they require far less maintenance, and quite often the desired results can be obtained with little or no extra gas consumption. Other mountings for the same lanterns complete with appropriate columns have been found suitable for new developments such as the re-building of Plymouth and for the large housing estates. The construction of the lanterns is robust and simple with the minimum adjustable features, and the automatic control equipment incorporated takes advantage of the progress in the lantern design. The light source is particularly consistent in its light output throughout life, and the high optical efficiency of the lanterns and other features which have been included in the design, such as the pre-set control of the gas rate, give these lanterns the ability to maintain the duty called for by the new Code of Practice for Street Lighting, with cleaning at intervals several times longer than hitherto employed.

Willey & Co., Ltd., exhibited the 'Cranford' lamp which is of entirely post-war design having features which make it equally applicable to either group 'B' installation or to the improvements of existing gas street lighting installations. It is available with superheaters carrying 2, 3, or 4 No. 1 or No. 2 mantles in two types of mounting. The long swan neck has been suited to improvements schemes where it was desired to retain in service existing short cast iron columns of about 9 ft. 6 in. height, as the height to light source with this type of lamp then became 13 ft. The short swan neck has been introduced for use with columns of 11 or 12 ft. height to give the correct mounting height on the new concrete and steel columns. Bypass or Comet ignition can be supplied and a pressure-operated cut-off valve is used at the lantern to prevent the ingress of air into the swan neck with consequent ignition difficulties. This valve and the Comet ignitor are housed in a pressed copper casing unobtrusively positioned inside the curve of the swan neck and behind the lantern body. The clockwork controller can be instantly removed from the controller housing by the unscrewing of two accessible screws and the design has been influenced by the need to ensure that all maintenance operations can be easily and cheaply carried out.

Other Exhibits

Allan Taylor (Engineers), Ltd., exhibited their service pipe cleaning outfits. A vacuum of 26 in. mercury is obtained in the tank in approximately two minutes, and a length of 1 in. suction hose is connected to the meter or lantern end of the service pipe. The control cock on the outfit is opened and the vacuum is applied to the pipe, thus drawing the obstruction into the tank. Pressure of 8/10 lb. per sq. in. can be obtained by simply moving a single lever.

In this manner excavation and re-instatement charges are considerably reduced, and a greater number of services can be cleared each day.

The Eagle Engineering Co., Ltd., exhibited examples of their towers and elevating gear which vary from power hydraulic gear and coach-built cabs and workshops built to individual requirements, to two, three, and four stage towers.

Shaftesbury Ladders, Ltd., exhibited two new examples of their tower units. Model TT/3R. is a dual purpose trailer tower unit, which can be either towed or manually propelled. The ladder structure comprises three telescopic sections elevated by means of hydraulic or screw elevating gear (manual). A 4-ft. 6-in. long × 22-in wide 2-operator platform is fitted, which will revolve 360° and lock in any position. Working height is 27/28-ft., and an adjustable jockey wheel is positioned at the rear of a specially designed all-steel chassis to minimise effort when hand propelled. Model PO/4R. is a fully mobile unit suitable for congested areas where compactness, manoeuvreability and limited headroom, etc. are of primary importance. Working height when extended is 28-ft., with 10-ft. 6-in. headroom clearance when closed. The structure comprises 4 telescopic sections complete with 4-ft. 6-in. × 22-in. fully revolving platform, elevated by hydraulic gear (manual). The tower is mounted on a three wheeled auto truck by Wrigley, powered by a 3 H.P. Villiers engine.

Vauxhall Motors, Ltd., exhibit a three-stage tower wagon on a Bedford 3-ton L.W.B. chasis. This tower wagon has a fully enclosed workshop of all metal construction mounted between driver's cab and tower. A full-length roller shutter 2 ft. 6 in. wide is fitted to the nearside of the body. The interior is equipped with a sturdy hardwood workbench, vice, and a storage cupboard, and a safety glass observation window is fitted. A three-stage tower of telescopic design is erected in a steel sub-frame over the back axle. Each tower stage it fitted at the rear with a telescopic ladder. The tower is hydraulically raised to a maximum height of 25 ft. from power-take-off on gearbox and lowered by gravity to 13 ft. It can be locked in any position and has a strangulated return valve at the base of the ram which acts as a safety device against crashing. A revolving platform is fitted on the tower, mounted on a steel sub-frame and turntable giving a circular movement of 360°. It is 7-ft. 8-in. by 3-ft. 3-in. and has 3-ft. high collapsible guard rails braced with diagonal steel stays. This platform can be locked in eight different positions and revolves on a chain and pinion gear.

The Works Staff of George Wilson Gas Meters, Ltd., recently had their annual outing to London. In the afternoon the party went to the South Bank Exhibition and despite bad weather enjoyed the visit. In the evening after dinner a large number went to the Coliseum and the remainder went to Battersea Park.

AMERICAN SPOTLIGHT

Items of Topical Interest from the Contemporary Technical Press of Canada and the United States

MORE ADVERTISING

A RECENT analysis by the Committee on Advertising (Cost Survey of Public Utilities Advertising Association) indicates that gas companies are spending 5% more for advertising this year than in 1950. This increase is larger than the 3.3% rise reported by electric companies, and the 3.1% by combination gas and electric companies.

The largest percentage increase in gas company advertising expenditures is taking place in promotional advertising which is up 10%. Last year the average advertising cost (for all companies) was 70 cents per customer, with individual companies reporting values ranging from a low of 12 cents to a high of $1.96. (*Gas Age*).

* * *

NATIONAL RESTAURANT SHOW

FOR the second year the A.G.A. Combined Commercial Gas Exhibit in the National Restaurant Exposition, Chicago, literally 'stopped the show.' Spanning the full width of mile-long Navy Pier, 320 ft. of exhibits facing the two main aisles were the focal point of all who passed through on their way to see other displays in this gigantic trade show.

A new display motif with blue flames on pylons served as the tie-in for the twenty co-operating exhibitors whose names were illuminated at the back of their respective areas. Brilliantly spotlighted displays made the gas exhibit one of the most attractive of the entire show.

Continuing an innovation of last year, the first day of the show was given over exclusively to dealers and their representatives. Thousands thronged the exhibits all way which was climaxed by a dinner given by the National Association of Food Equipment Manufacturers. (*Gas Age.*)

* * *

DRILLING VERSUS DIGGING

SAN Diego Gas & Electricity Company uses a multivane air drill for boring the service pipe connection holes and thus saves the time and labour involved in digging a trench. The drill admits water through its shaft to soften the ground being drilled. Equally, compressed air jets can be used for the same purpose. Sometimes the two are combined.

A fish tail bit is screwed on the end of the drill pipe, and a section of 1¼ in. guide pipe, which will not flex, keeps the drilling straight after bars are set to hold it in place. Where conditions permit, the entire length of the service pipe is set up in advance and when the drill hole is finished the wrapped gas pipe is pushed through ready for connection.

Whether on house connections or larger pipes under highways, the drill method is conservatively estimated to cost half that of the trench method. In many instances, however, the less serious interruption of traffic on the highways is regarded as a more important advantage of drilling. (*American Gas Journal.*)

* * *

INDUSTRIAL GAS SCHOOL

THE third post-war Industrial Gas School was held in the Hotel William Penn, Pittsburgh, during the week of May 14. One hundred and twenty-three enrollees from 27 states, four Canadian provinces and the District of Columbia, made up the student body. This group represented 55 member gas companies, 17 member manufacturing companies, and two service and research organisations.

The programme, one of the most comprehensive ever offered to newcomers in the gas industry, also served as a refresher course for old-timers. Popularity of this school was evidenced by the fact that many of the students had attended one or more previous industrial or commercial schools.

Twenty-six lecturers, including industrial men from member companies, representatives of manufacturers, a consultant and member of A.G.A. staff, gave the five-part course. (*A.G.A. Monthly.*)

* * *

TRANS-CANADIAN PIPELINE

CONSTRUCTION of a natural gas pipe line from Alberta to Montreal would be as important to Canada as the building of the Canadian Pacific railroads, Dr. G. S. Hume, Department of Mines and Surveys, Ottawa, told the 65th annual meeting of the Engineering Institute of Canada. He revealed that proposals to deliver the gas to Toronto and Montreal from Alberta are now being made. Plans for such a pipe line are now being considered by provincial government officials, he said. Natural gas is so cheap it could be piped across Canada and could compete with fuel oil or coal.

A group of Texas men have asked the Alberta Government to approve a $250,000,000 pipe line that would begin in the Princes area of Alberta, he added. The line would run to Toronto and Montreal, and would branch out to Ottawa. It would carry about 365 mill. cu.ft. daily, which would be increased to 500 mill. cu.ft. (*Gas Age.*)

NO NEED FOR PESSIMISM

NOTWITHSTANDING all the efforts made by the electrical business over the past 35 years, especially here in Ontario, Canada, to boost the use of electric cooking, doesn't it seem strange to most of us who have been somewhat afraid of this competition to learn that there are more gas ranges in use in Toronto and Hamilton, Ontario, and in Montreal, Quebec, than the total number of householders cooking by electricity in the Province of Ontario, which embraces something like 600 to 700 cities, towns, villages and townships?

The 1948 Dominion Bureau of Statistics give the information that of all the 3,504,000 households in Canada, only 623,000 use electricity for cooking, while 850,000 use gas for this purpose. Of households connected electrically, the number is 3,002,000, and these are scattered among over 5,000 cities, towns, villages, and hamlets throughout the land, while gas service only reaches something like 300 cities and towns. Yet, among these comparatively few gas communities, more gas cooking is done than in the total of the households in Canada served electrically. (*Canadian Gas Journal.*)

* * *

COMPETITIVE BUT CLEAN

THE President of the American Gas Association (D. A. Hulcy) called upon public utility executives to keep rival gas and electric advertising 'competitive but clean.' Speaking before the Public Utilities Advertising Association's 30th annual convention held at the Hotel New Yorker, Mr. Hulcy said industry advertising was cleaner today than it ever was, but he thought it still could be improved. He was more critical of some newspaper advertisements, dealer and sales-training literature and manufacturer-sponsored demonstration.

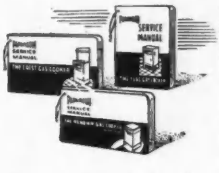
L. V. Sutton, president, Edison Electric Institute, declared that the industry has two simple but effective weapons to answer outside attacks. The first, he said, is efficient and honourable operation; the second, is telling the utilities story truthfully in effective and hard-hitting and convincing terms.

A feature of the convention was the announcement of 143 winners of the 1951 Better Copy Contest. In this the contest's 28th year, entries were judged in 22 classes, which included virtually every media of advertising and public information. A special citation was presented to the Potomac Electric Co., Hagerstown, Md., by the contest committee for its cartoon advertisement 'Ten Little Free Workers.' The cartoon pointed out the dangers to all industries of 'creeping socialism.' (*Gas Age.*)

THE "RENOWN" POCKET-SIZE ENCYCLOPEDIA

...now in its second 10,000

The second edition of the Parkinson RENOWN Mark IV Service Manual has become necessary to meet the demands of those engaged in Gas Cooker Servicing and Maintenance who realize that this important contribution to the technical literature of the Industry *should be in the hands of every member of the Maintenance and Fitting Staffs.*



Personal copies of Service Manuals on the following models in the Parkinson range are available to all Gas Industry Personnel:—

★ **RENOWN** Mark IV Gas Cooker.
★ **CREST** Gas Cooker.
★ **FLAG** Gas Cooker.

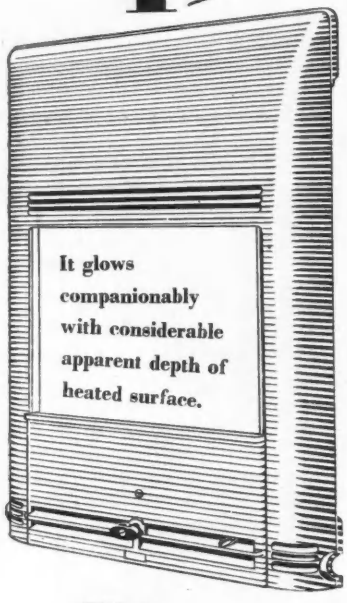
THE PARKINSON STOVE CO. LTD. BIRMINGHAM 9

A member of the Parkinson & Cowan Group.

The SILENT BEAM MALMESBURY

Mrs. Smith bought *this*

1



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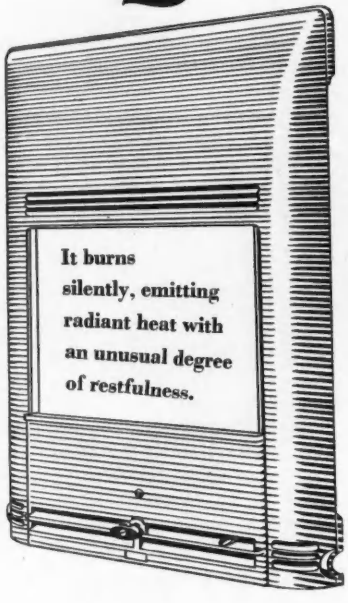


3

No wonder she said

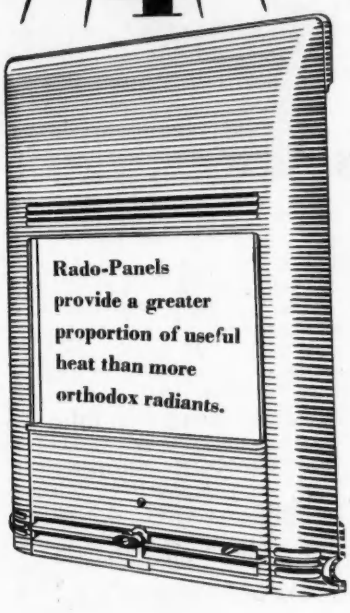
RADIATION GROUP SALES, LTD., Head Office & Showrooms: 7, Stratford Place, London W.1. Tel. MAYfair 6462

NEW WORLD NEW WORLD NEW WORLD

gas fire because...

4

Rado-Panels provide a greater proportion of useful heat than more orthodox radiants.



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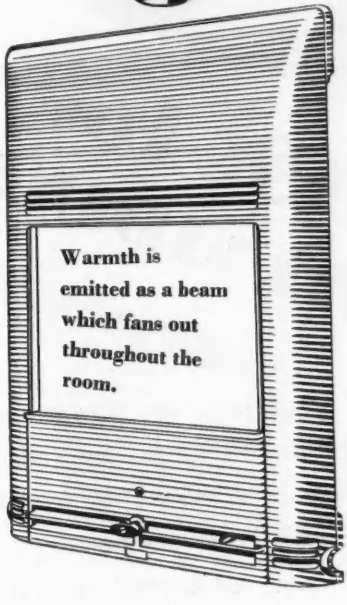
Warmth is emitted as a beam which fans out throughout the room.



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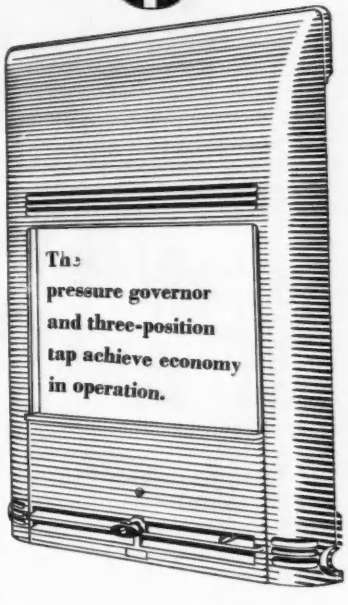
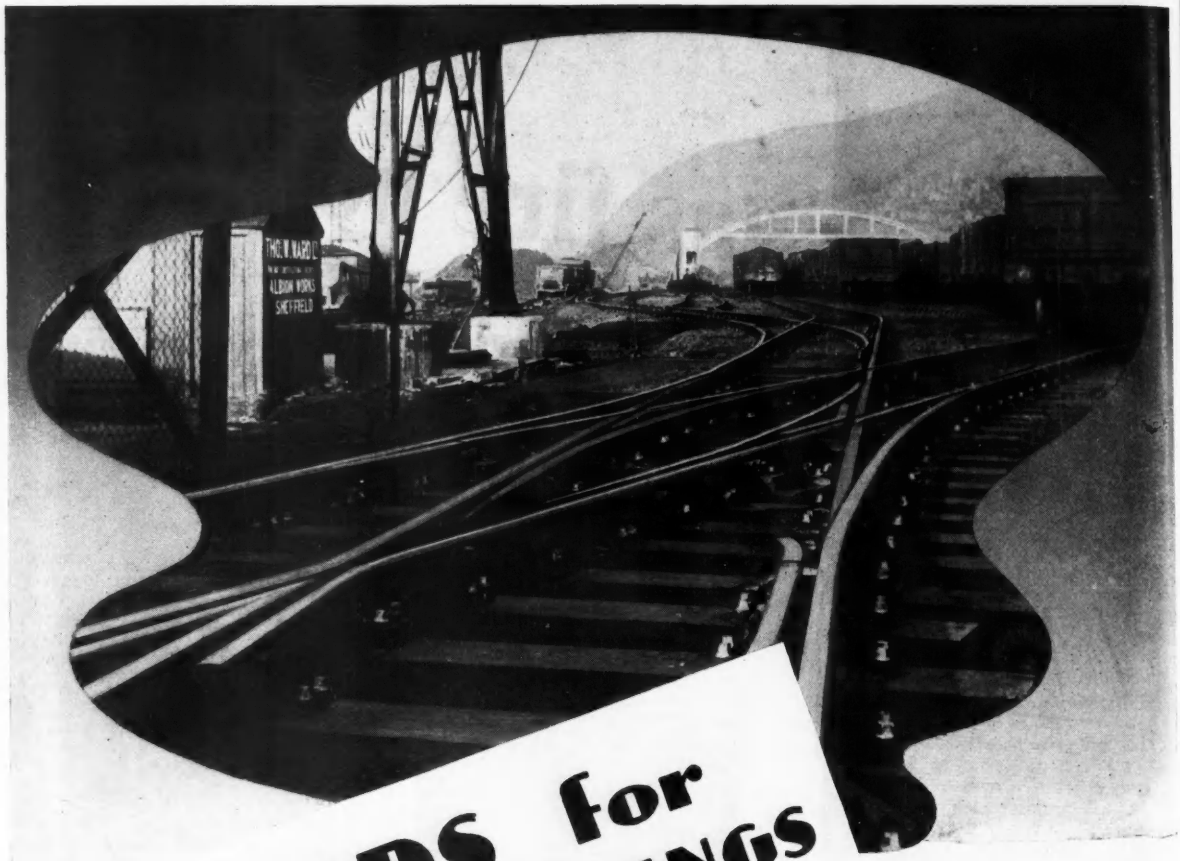
The pressure governor and three-position tap achieve economy in operation.



...it's a NEW WORLD PRODUCT OF Radiation Ltd *for me!*

NEW WORLD NEW WORLD NEW WORLD



WARDS For RAILWAY SIDINGS

Plant engineers at power stations and other public utility undertakings appreciate the smooth running efficiency of a WARD-built railway siding. This is no fortuitous achievement—it is rather the anticipated consequence of careful planning and skilled engineering down to the last chair screw. When sidings are the problem, WARDS can be of service.

ANOTHER ASPECT OF TWW SERVICE

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TELEPHONE 26311 (22 LINES) · TELEGRAMS 'FORWARD' SHEFFIELD
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SC/2

IRELAND'S PRESENT AND FUTURE PROBLEMS

By N. J. ROBERTSON, A.C.A., Assoc.Inst.Gas E.,
General Manager, Alliance and Dublin Consumers' Gas Company.

In the following address* as President of the Irish Gas Association the author discusses some of the present difficulties confronting the Irish gas industry, with particular reference to raw materials situation and to the need for flexibility of outlook in the attempt to cope with peak loads. A considerable proportion of the address concerns the author's first-hand experience of the methods and attitude of the American gas industry today

LAST year the President was able to speak of arrears of maintenance work performed, of improvement in our operating conditions, and of greater availability of supplies necessary to carry on our undertakings. This year the picture I must draw of the past 12 months is less satisfactory. With the more unsettled international outlook, world demands for stockpiling, increasing productions and supplies going into western defence, and an adverse trend in conditions generally, supplies of materials and particularly of coal reverted some way towards the stringencies of the war years. As regards coal, our life blood, it is necessary to avoid overstatement, for, while it was contracted for on a quota related to minimum requirements, considerable doubt as to its being forthcoming existed throughout the whole year. Thus uncertainty and low stocks proved a constant source of anxiety. In retrospect we must—subject to general reduction in working stocks—not be unthankful, for supplies were sufficient substantially to meet our needs. Having regard to the special shortage of coking and gas coals in Great Britain, we of the southern undertakings especially are not unmindful of the close watch and sympathetic attitude of the National Coal Board.

Coincident with these fuel difficulties in our industry there also occurred considerable shortage of domestic and industrial coal, which inevitably caused marked and sharply increased demands on gas plants. In many undertakings the increased demand was such as to leave but a narrow plant margin; nevertheless, all requirements were met successfully and we may draw satisfaction and pride from the knowledge that we have enhanced our reputation for reliable service.

Today we do not know what the future holds; in the coming months we are informed there will be shortages in Great Britain and great deficiencies of coal in other parts of Europe. Therefore it is opportune to remember that the burning of coal in its raw state, under most present conditions of domestic use, is wasteful, and that coal distillation offers an immediate and practical method of securing materially greater economy of use. In a survey of conditions in Great Britain, made in 1940 by C. A. Masterman, the overall economy of the carbonisation process over other forms of domestic coal utilisation, both raw burning and electrical, was placed at no less than 40%. Savings of this order evaluated on the coal used domestically in this country would be a material factor in meeting the overall fuel demand and in times of fuel stringency has particular significance. When coal is in short supply the national economy and social need demand a high priority of supplies for carbonisation.

On the subject of costs our story is also disappointing. The same influences leading to supply stringency have also reflected increased costs. The most important increase occurred in the prices of British coal. In Northern Ireland this increase was 4s. 2d. per ton, and in Southern Ireland the enormous addition of 17s. 6d. per ton became payable. In the South purchases of continental and American coal to supplement British supplies have been a further factor of increased expense. These imposts, together with higher shipping freights and increased costs of supplies generally, have inevitably been reflected in higher prices charged for gas and coke.

Summing up our general experiences of the year, it was a strenuous and anxious period, but not without satisfying features. We have met a test of our capacity and resourcefulness without failure of supply or resort to restrictions. Arrears of plant maintenance have been largely made good. A measure of development has been possible and the volume of public demand for our service and installations cannot but give all in the industry a feeling of great confidence in the future. Indeed it seems that at least for some time our problems will be related to too much demand rather than too little.

The history of the gas industry, though largely a story of evolution, is no record of easy progress. Competition, developments in related sciences, and the possibility of being outmoded have exercised not only our minds but also the minds of our predecessors in the industry. These influences have stimulated both technical progress and the successful development of new fields of application, although social needs and higher living standards have undoubtedly been of importance. The resulting growth of the industry has been enormous and today we enjoy an ever greater and assured demand for all our products.

In these circumstances it is not outside possibility that an attitude of undue confidence in the future could arise and a condition where we devote ourselves too completely to overcoming the day-to-day difficulties and paying insufficient attention to future planning and improved efficiencies and techniques. To pose the possibility, however, finds the immediate reply. Events do not stand still; the industry here and abroad must and will achieve higher standards.

Gas Supply Conditions in Ireland

In Ireland the manufacturing and supply unit for geographical and physical reasons is in general small, and fundamental research on any large scale is beyond local means. Even recognised standards of good practice and control may not be economically practicable in all cases. Where a works employs a few men it is unlikely that continuous chemical analysis and tests are possible, and to say that such undertakings should prepare overall thermal balance-sheets is not to face reality. Similarly, to specify as a general principle minimum standards of instrumentation, or even lay down that gas volumes should be corrected and compared on standard temperature and pressure bases, is to seek the practically unattainable. Control in such works must largely rest on the manager, who has already multifarious duties. Nevertheless, all raw material today becomes progressively more valuable; every product we make commands higher prices; and although we must recognise the practical limitations of what is desirable we cannot but admit that these facts alone demand that processing must become more efficient and that higher standards of scientific technical control year by year are more desirable everywhere. To secure such control

* Annual Meeting, Dublin, September 11, 1951.

Our photograph, taken at the annual meeting of the Irish Gas Association, held in Dublin on September 11, shows Mr. N. J. Robertson, President of the Association, during the presentation of his address. On his left is the Lord Mayor of Dublin.

better qualified operatives will be necessary and there would seem to be room in our industry for more attention to technical education of our younger staffs both in the works and on the district. I would like to see the Association offer some positive encouragement to this end. Almost one-quarter of the thermal value of our raw materials is lost in the carbonisation process; the efficiency of distribution and utilisation may not be placed above 60%. Thus possible savings through improved control are still great and even small success will well repay the costs involved.

Lessons from America

Examination and improvement of our technical control, however, touch but what is well recognised, and although it is with full consciousness that what is good in America may not be applicable here I propose to mention some of the American practices which I was fortunate to have the opportunity to see in operation first hand earlier this year. Most of these advanced techniques arise out of planning based on studies or some forms of functional research. It is, however, the attitude of scientific planning and the acceptance of what may be unorthodox by present practice in the search for higher efficiency to which I draw attention, rather than to suggest that the techniques mentioned are suitable for introduction here.

Functional research, motion study, and similar descriptions used to describe planning approaches are but basically the investigation of conditions and the accumulation of data for resultant action. Such scientific study through industrial specialists, leading to improved shop layout, elimination of waste effort or material, high machine utilisation, or the development of specialised tools, etc., has in recent years become at least fairly generally known as a means to increased production. The regular and routine examination by undertakings of their methods by their own specialised staffs organised as functional departments, however, is not usual in our experience. It may be argued with some justification that such methods are appropriate only to enterprises where resources are large. However that may be, if reference to this subject is but provocative of thought and adaptation to our conditions the time will not be wasted. For my part I am convinced that while the coat must be cut according to the cloth, continues objective review is indispensable to industrial efficiency and progress. These instances I mention are confined to distribution and administrative methods, because manufacture in the U.S.A. has given way very largely to utilisation of natural gas which finds no parallel in our practice.

Mains and service laying by means of dry and wet boring techniques is used to a very large extent both in newly developed areas and in areas where other services are in the ground. Advantages of not disturbing top soil and road surfaces over the older practice of opening along the line of pipe are self-evident and are reflected in minimum re-instatement costs, labour economy, the avoidance of nuisance, etc. This method was developed and is still being improved by field studies followed by periodic reports to top management.

A novel form of service pipe renewal, perhaps of little general application here, is of interest to mention because its development further illustrates radical change from previous well established practice. In lieu of conventional renewal, copper tube of suitable size is driven as a liner into the existing service, proving expeditious and relatively low in cost. Owing to considerably higher calorific values and district pressures in natural or petroleum gas systems, as compared with our practice, the reduction of the internal pipe diameter is of no disadvantage.

Service connections and cut-offs effected through small road openings of approximately 1 ft. square is common practice. Depths at which mains are laid are greater than with us due to wider temperature variations, but special tools to work at such depths in the restricted space of the shaft are used with satisfactory results.

A method has been developed to enable expeditious and exact location of main pipe fractures and is of special advantage where the pipe is under concrete or the source of escape is for other reasons particularly difficult to trace. In conjunction with this apparatus full use is made of electrical detectors for pipe positions and depths. The method appears to secure substantial savings in avoiding abortive ground openings.

Gaining Goodwill

Planning of a different type with a view to securing maximum consumer goodwill is evidenced by rather complex systems designed to ensure early attention to complaints and requests. A close location control of district fitters is maintained by routing, use of telephones on the district, including those of consumers, and incorporating two-way radio equipped service cars. The method of recording and transmitting of consumers' requirements in the head office control section enables urgent matters to be given service within minutes of receiving the complaint day or night, and it is fundamental that all enquiries are at least dealt with on the day of receipt.

The views of each undertaking visited emphasised the essential nature of prompt and complete customer service almost irrespective of the expense involved. Undertakings encourage consumers to deal with the company by telephone rather than by letter or personal call, and specially designed telephone systems to minimise frustration have been developed. The most impressive was the one voice system whereby whatever the enquiry or complaint the receiving operator—selected and trained for the purpose—himself conducts the call through all necessary departments. There are few of us who have not experienced the irritation of an elusive telephone chase for information through various departments of large concerns. Where this occurs we are left with feeling of resentment and are highly critical of the organisation in general. The one voice system places the responsibility for satisfactory reply to an enquiry as a specific duty on one person in the undertaking. A test check by listening-in confirmed the objective efforts of these staffs to leave impressions of willing service and personal interest with

IRISH ASSOCIATION OUTING

Our photographs were taken on the occasion of the Irish Gas Association outing on September 12, when a large party of members and their ladies visited Greystones after a delightful drive through many noted beauty spots.

each consumer. In the series of conversations to which I was permitted to listen this attitude resulted in a notable atmosphere of friendliness and courtesy.

In the office organisation proper, planning is equally in evidence. The importance attached to the functional planning unit, even as regards office methods, is no less than in other departments and is well illustrated by the Chicago Company's organisation. Here the department specifically attached to the office and officially referred to as Methods and Routine Department is comprised of a permanent staff of 14 persons, 10 of whom were senior routine engineers or officers. Apart from reporting on special problems, examination of all clerical departments and methods is continuous.

The problems dealt with are extremely varied and ranged from the type and intensity of lighting required, re-design and layout of offices, and installation of conveyors for the transfer of documents, to the routine investigation of new office machinery as it came on the market. In this regard it was significant that in each undertaking questioned as to their views on new mark sensing and electronic calculating equipment, detailed reports were produced and decisions had been taken by the planning departments supported by considerable research data.

Delegation of Authority

Before leaving these impressions of the American gas industry, which are dealt with more specifically to illustrate its acceptance of the need for intensive research and planning organisation, it is relevant to mention that one of the most significant developments of American industrial organisation generally is the effort to delegate authority and place responsibility at low supervisory levels. To impart to the foreman or shop supervisor the feeling that he is part of the management, and to develop controls to assess his response.

The controls take the form of budgets, standard costs, or even conventional statistical reviews incorporated into the overall financial programme. At the commencement of each review period every department, sub-department, and activity contributes its estimated programme, which provides the basis for examination and enquiry of actual performance throughout the period. In gas undertakings where the volume of operations normally lies within predictable limits, the programmes takes the form of simple capital and operational budgets for each month of the financial year, revised later as necessary. Such budgets are supported by detailed bases and estimated standards of output. They are, in effect, the aggregation of estimates at all supervisory levels and enable responsibility to be placed effectively on the individual charged with securing performance. Each month the ascertained results are broken down to correspond with each such supervisory unit, and enquiry and investigation of differences takes place. An effective degree of decentralised management is secured, real participation and responsibility are felt by supervisory staffs, and an index is available to measure their efficiencies.

Plant for Peak Loads

Finally, I wish to refer to certain considerations which it appears to me have become of increased importance in determining new plant requirements. If our confidence in the future of the industry is justified such matters will face most of us in due course. Peak loads of a seasonal character approaching the limits of existing capacity will normally give rise to the need for, and determine the nature of, new construction. Seasonality, which will give a probable low load factor though varying in degree, on the additional plant, gives rise to the important question of first cost as opposed to operating cost. It is obvious that the lower the load factor the greater is the incidence of capital charges in the final product cost, and because of the great rise in capital costs this feature has tended to move the overall conclusion in favour of lower initial cost types of plant despite higher prime operating costs. Influences beyond our control are arising to complicate the picture, such as restricted availability of coking coals and material changes in the coal, coke, and oil price relationships.

The economics of gas-making in standard carbonising and carburetted water gas plants on low load factors may well be unfavourable as compared with expedients to stretch existing production with, for example, producer gas, or, alternatively, Geim oil cracking type plants. Such plants are very cheap though low in thermal efficiency, and where the additional gas is not a material proportion of the whole limited application may well prove to be both wise and financially attractive. At present our ultimate position in regard to coal awaits clarification and views on gas-making policy and economies must be approached with more flexibility than was formerly necessary. The enormous increases in capital costs and the possibility that some of the increased loads today and even in the future are but temporary diversions from other fuels cannot be neglected.

GAS INDUSTRY VOCABULARY

IT might be said with some truth that gas is an international language, since like other industries and interests it provides a common ground for discussion among men of many nations. It is surely no exaggeration, however, to suggest that gas manufacture and its parent subject, fuel technology, form a particular link, and the work of the International Gas Union does much to support this view. Fortunately the study of American practice, via the several excellent journals published in the States, has language difficulties only for the purist. Less satisfactory for those who are not multi-lingual—and they are the majority—is the study of Continental practice; and this is the more unfortunate because methods in France and Germany have a marked similarity to our own.

It is therefore in the hope of performing some service to the average reader interested in the gas industry abroad that we call attention to a six-language handbook which should do much to overcome these difficulties of translation which, owing to their technical nature, the average dictionary fails to solve. *The Gas Industry Vocabulary* is not a new book, but it has not hitherto been mentioned in these columns.

The book is arranged in the following manner: Gas industry terms are grouped in 20 chapters, with such titles as recovery of by-products, sulphur removal, gas measurement, etc., and each word or phrase is given in English, French, German, Polish, Czech, and Serbian, having in each case a separate key number. There follow, printed on papers of various colours, alphabetical registers stating the chapter and index number of each item. Thus it is the work of a moment only to look up a word in the appropriate register and thus be directed to its exact position in the main section.

It is interesting to note that while the scope of the book embraces the whole process of gas manufacture and distribution from its chemical beginnings to the installation of appliances, there is an extra and very valuable chapter on the 'commercial-technical part,' dealing exhaustively with essential commercial terms which the reader might have expected to be found only in some separate volume.

The book consists of 384 pages, a certain number of which are blank and are presumably intended for notes, plus some advertisements (none of them British). It is cloth bound and clearly printed on good quality paper. Published by Bailey Brothers & Swinfen, Ltd., Minerva House, 26-27, Hatton Garden, London, E.C.1, the price is 20s.

The Duke of Edinburgh has accepted the office of President of the City and Guilds of London Institute for the Advancement of Technical Education to which he was elected at a special general meeting on September 21. The connection between the Royal Family and the City and Guilds of London Institute goes back to 1881 when Prince Leopold, Duke of Albany, laid the foundation stone of the Finsbury Technical College, which was the prototype of many technical institutes now to be found within the United Kingdom. In that year The Prince of Wales signified his willingness to become the first President, and as such presided at the annual meeting in 1882. In July, 1881 he laid the foundation stone of the Central Institution in Exhibition Road, now known as the City and Guilds College, which he opened in 1884. In 1900, the Institute received the grant of a Royal Charter from Queen Victoria.

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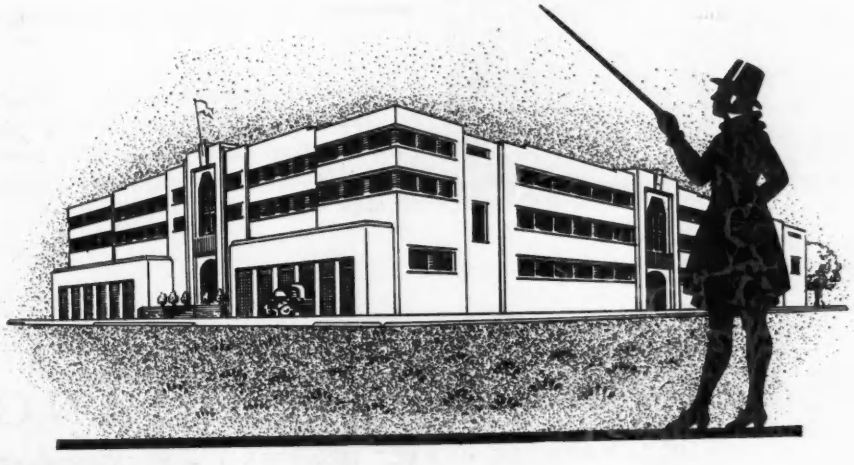


quality production

Ring boiling burners for cookers ready to go into one of the enamelling furnaces. Each burner is carefully examined to make sure that it has been evenly and completely covered with the enamel coating.

Cast-iron legs of a cooker receiving a dimensional check with the aid of a Height Vernier Scale. Such tests are carried out periodically to ensure that individual parts conform to a standard shape and size.

main GAS APPLIANCES

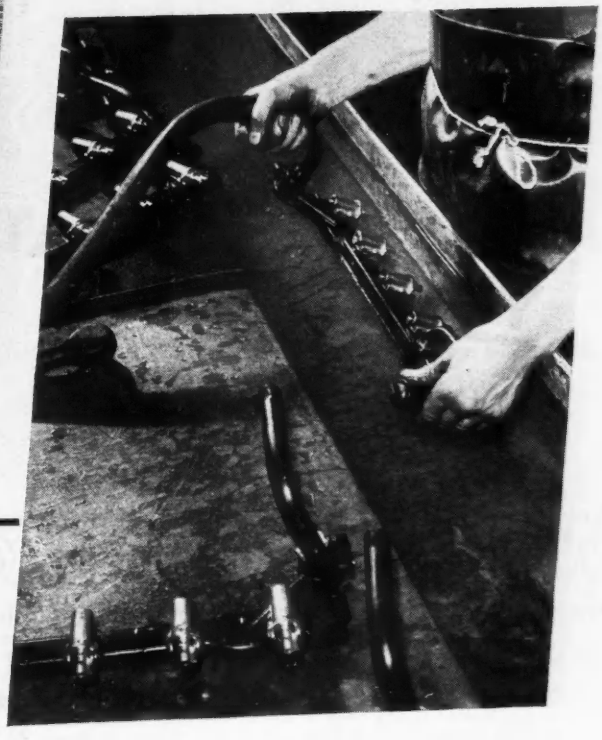
COOKERS • SPACE HEATERS • WATER HEATERS

MAIN

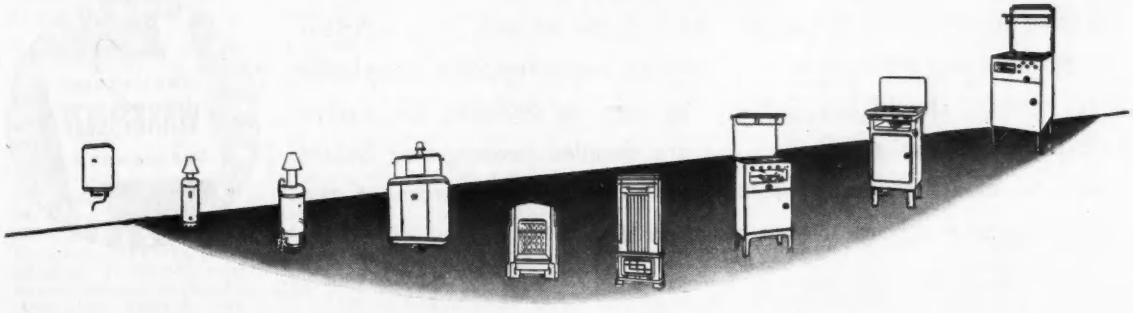
MT/851

IN GAS APPLIANCE MANUFACTURE

These oven grid-shelves have just been removed from one of the plating tanks. They have been given a dull chromium finish, and are being closely inspected before being passed for issue to the general stores.



Testing cooker gas rails. An air hose is connected to one end of the rail, which is then immersed in water. This simple but effective test immediately shows whether or not the rails are gas-tight.



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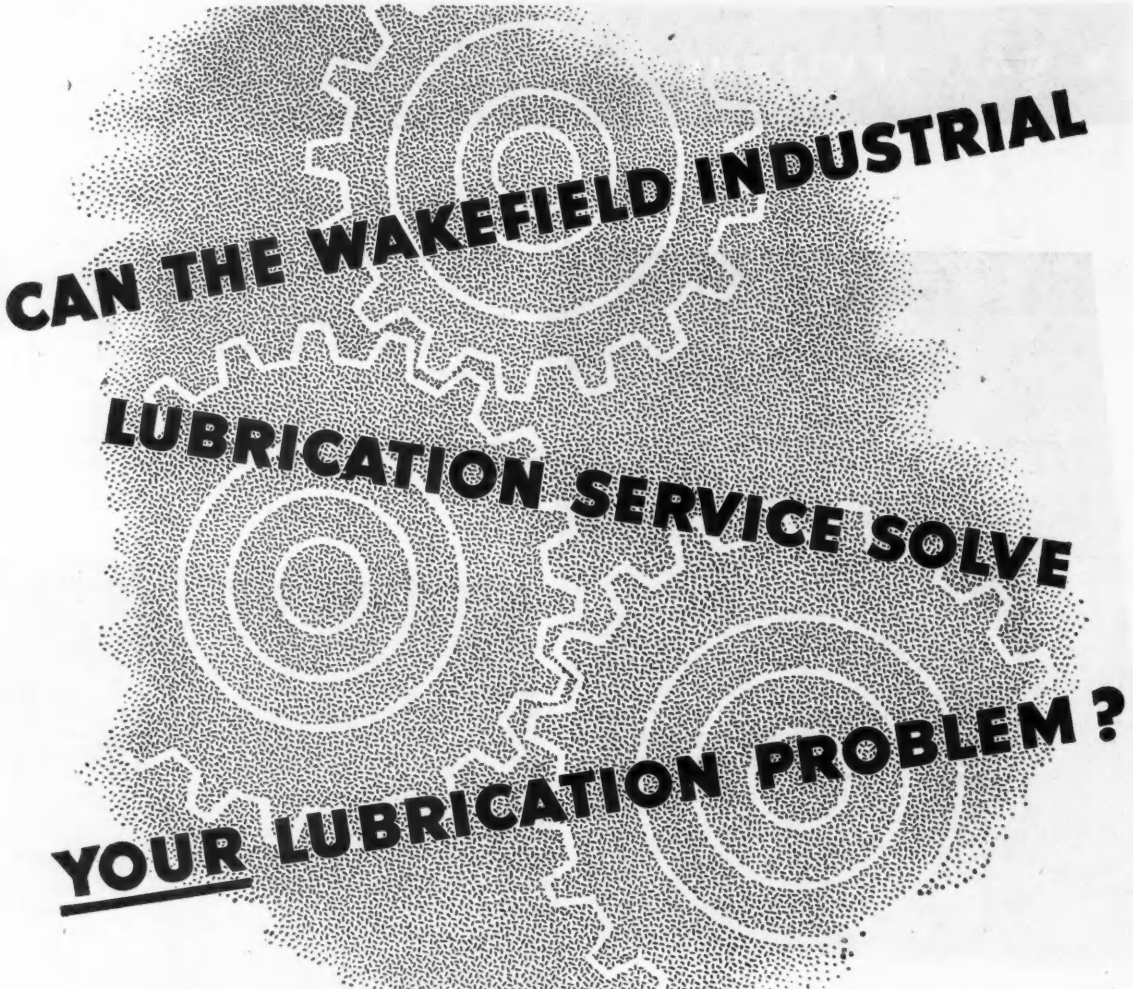

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DR. JAMES G. DAVIDSON

NORTH BRITISH DISCUSSIONS

We publish below reports of the discussions which followed the presentation, on September 6, of the three papers at the final meeting of the North British Association of Gas Managers. Dr. Davidson's paper was published in the *Journal* for September 12, p. 641, that by Mr. Campbell in the issue of September 19, p. 705, and that by Mr. Rea on p. 712 of the same issue.

FINANCIAL ASPECTS AND IMPLICATIONS

By James G. Davidson, M.A., B.Comm., Ph.D., F.I.M.T.A., Chief Financial Officer, Scottish Gas Board

Mr. **D. Beavis** (Divisional Controller, Edinburgh), as a prevesting friend and colleague of Dr. Davidson, said he welcomed the privilege of being the first to congratulate him on the interest and quality of his paper. As Principal Assistant, Dr. Davidson had been in charge of financial and accounting matters in the old Edinburgh Gas Department 20 years ago before becoming Deputy City Chamberlain of Edinburgh. They were doubly fortunate to have as their Chief Financial Officer one experienced in the higher flights of civic finance and also familiar with the detailed operations of a gas undertaking, not the least complex of organisations. That explained the sympathy shown in the paper for the difficulties created in the smaller districts by more elaborate accounting detail than was necessitated in the past. Irksome though it might be, it would be generally appreciated that there was no alternative. He would cross swords, however, with Dr. Davidson on the question of the financial entity of units. There were one or two references to the fact that the Board presented only a consolidated account. Perhaps he had read into that more than was intended, but if the underlying significance was that individual district accounts were unimportant, he could not agree. As Dr. Davidson had stated, they had at present an organisation which was primarily area and not functional. The management unit was district. There was no meaning in management unless it included responsibility for the financial prosperity of the unit. It had been one of his anxieties that the effect of a single Board account was that districts might lose interest in their individual economics. Formerly, each of the 194 undertakings had to satisfy a committee or board of directors not only that the supply of gas was being kept up to standard, but also that the undertaking was in a sound financial position. It might be that, as a matter of policy, certain units had good reason for being helped by the more prosperous, but it should be an adjustment after the trading balance for the units had been determined. If maximum economy was to be attained, then each manager should take no less interest to-day in the profit and loss account of his undertaking than he did when he had to present it to a committee or board of directors. That was why some district managers were so interested in items like omnibus 'Board Expenses.' It was a healthy interest because they wanted to know what they were getting for their money and, as good managers, rightly so. They were still interested in giving their consumers the cheapest possible gas and, to that extent, should scrutinise closely every debit charge in their Revenue Account.

He would also like to refer to what appeared to him to be a tendency for financial policy to be designed along academic lines rather than those of commercial prudence. There was a good deal of 'hidden fat' in many undertakings. Items academically capital were met out of revenue—*e.g.*, major retort repairs. Stocks were certainly not over-valued. Unread gas was not brought in, and so forth. The trend at the moment seemed to be to realise such reserves now, but the wisdom of that course eluded him. There was no question of former sharp practice in these matters. The transactions were divulged for taxation and rating purposes, but it meant that when difficult times came along there was always a cushion. It seemed commonsense to meet as much out of current income as possible, rather than put off settlement dav until some future date when they might be hedged about with unforeseen difficulties. Dr. Davidson had given them an ample survey from one end of the telescope. A small part of the area as seen from the other end had now been dealt with.

Mr. **J. M. Dow** (Paisley), supporting Mr. Beavis, said Dr. Davidson would know all the answers before even the questions were put. A few of them felt they had been on low gear for the past two years. All the information Dr. Davidson wanted came from the districts to the groups, and the group manager had to burn a great deal of midnight oil to transmit that information to headquarters. He was not complaining. That was what was likely to happen after nationalisation. He had hoped that Dr. Davidson would say something about the future. What would be the effect on the industry when capital allowances disappeared? Codification was necessary, but simplification was the essence of success and many of the codes were superfluous and could with advantage be reduced. He would have liked to hear Dr. Davidson on statistics and some other matters, but his paper was a most valuable contribution.

Mr. H. S. Milne (Aberdeen) said that the best way to get a job well done was to explain the reason for it. Dr. Davidson had given them some full explanations. He hoped that similar explanations would be given from time to time. They would greatly improve their all-round efficiency and create a renewed interest in their work.

The President intimated that Dr. Davidson would reply in writing to the points raised.

CONSUMPTION PER CONSUMER

By William E. Campbell, Galashiels.

Mr. **W. Stewart** (Armadale) said that in these days of fuel shortage and pressure on plant it was refreshing to find someone optimistic enough to come forward with such a paper. They all realised the paramount importance of as high a consumption per consumer as possible, but how to achieve it was another matter. A good deal of preliminary work was necessary before embarking on a two-part tariff or a block scheme. It was not easy to design a tariff without losing revenue. Mr. Campbell had said there was a definite relationship between the number of rooms and the capacity of the consumer to use gas, but he had found, in new housing estates in Armadale, that in two, three, or four roomed houses the average consumption was the same. In Armadale also the consumption of gas in pre-fab houses was lower than in traditional houses. The highest consumption was where they had a cooker and a boiler. He would have thought a refrigerator, properly used, would have sent up the consumption, but it had not done so in Galashiels.

The author had stated that the two-part tariff in Galashiels needed no selling, but most of them found the opposite, because people did not take it up voluntarily. He (the speaker) thought that with higher consumption the percentage of unaccounted-for gas would have fallen, but it had not done so in Galashiels. In many places increased sales were recorded not because of tariffs, but as the aftermath of war and because of the shortage of fuel. The average home could spend only a limited sum on fuel and the housewife could not exceed it, no matter how many tariffs were introduced. He hoped the Scottish Gas Board would have the courage to be the first Board to declare a standard calorific value for the country. It should not be difficult with modern carbonising plant, and it would help the industry.

Mr. **David Fulton,** (Part-time Member Scottish Gas Board) said that ever since Mr. Campbell had had a gasworks of his own his mind had been preparing tariffs to increase the sale of gas per consumer, and no man in the United Kingdom had been so prolific in preparing different forms of tariffs, both in Galashiels and in Buckie. He could not see how even on the basis of expediency three different forms of tariff were justified in one gas area. Mr. Campbell had something for everyone, block, two-part tariff, and special contract. In fixing prices regard must be paid not only to the cost of material and labour in producing gas, but also to the provision of plant. Central heating was a seasonal load and it was not wise or desirable to have special contract rates for it. From one viewpoint it was a bad load, employing plant in the winter which was idle in summer. Central heating should bear its share of providing the plant. The paper carried more information than could be absorbed, and so many charts and statistics were not needed to prove the author's contentions.

Mr. **Robert Cowie** (Hawick) said that when a commodity was sold at a price which was uneconomic a false position was created. The low price of electricity had made gas go in for tariffs. Business gained by Mr. Campbell on the two-part tariff had been at the expense of solid fuel. Hawick, a town similar to Galashiels, had no tariffs; yet the rise in consumption there, for both pre-payment and ordinary consumers, compared favourably with the rises in Galashiels. taking the years from 1939 to 1949. Tariffs had the bad effect of masking the position. An undertaking with big industrial loads might lose domestic business. There might be deterioration elsewhere. If one sold large scale water heating for domestic purposes there should be a special form of charge. A full hot water service in the house was valuable but costly. They should all set their own figures beside those of Mr. Campbell and compare them.

Mr. **G. E. H. Keillor** (Airdrie) said that the author rightly had suggested a factual survey to establish the correct price differential between pre-payment and credit meter consumers. His own view was that the costs of reading and billing, collection and banking, were approximately equal. It followed, therefore, that the main reasons for a price differential were: (1) the capital charge for the extra cost of the pre-payment meter attachment and padlock; and (2) an allowance for the extra maintenance of the slot mechanism. The extra capital required at present was 45s. 2d. for the meter, plus 2s. 6d. for a padlock making 47s. 8d. in all. Assuming repayment over 10 years and 4% interest on the average outstanding balance, that required an annual sum of 5s. 8½d. To express this sum as a price differential, an annual gas consumption of 28,000 cu.ft. per meter could be safely assumed. It gave the differential a value of 2.45d. per 1,000 cu.ft. If the differential were 3d. per 1,000 cu.ft., as in Airdrie district, the return would be 7s., which allowed a margin for one extra call for defect or 'meter full,' etc., every year. In practice only about 5% of meters required an extra call, so that it appeared under the conditions ruling in his own (Airdrie) district that the 3d. differential was fair and reasonable. But that should not be imposed on any gas consumed above a certain consumption, otherwise an excessive rent would be exacted from the consumer. This was dealt with in Airdrie by the structure of the block scale, which allowed pre-payment consumers the same terms as credit consumers after the consumption of 7,000 cu.ft. per quarter.

Mr. **Campbell,** replying, said he could not imagine any gas engineer building plant he did not intend to use. He had worked on the basis that gas would only be popular so long as people used a lot of it. His object was to sell gas at the lowest possible price. In Galashiels they had tried to make their consumers gas-minded by encouraging the use of gas.

PRODUCTION MATTERS

By A. C. Rea, M.I.Mech.E., M.Inst.Gas E., A.H.-W.C., Production Engineer, Bath Sub-Division, South Western Gas Board.

Mr. **W. S. Johnstone** (Dundee) remarked that the author was to be congratulated on making such good use of the site. The proportion of water gas, compared with coal gas made in horizontals, was large. That was possibly dictated by circumstances, and the installation of the new verticals would do away with the large quantity of water gas being made. The present proportion of 40% against 60% was too great. Mr. Rea had given 560 B.Th.U. as the calorific value of his coal gas, but had not given the calorific value of the water gas. Compared with Bath, Scotland was fortunate in regard to the sulphur content of its coal. The layout of the Bath works was a long-term design.

Mr. Rea said the calorific value of the carburetted water gas was 480 B.Th.U.

In reply to Mr. **A. MacFadyen** (Dumbarton), Mr. **Rea** said that as far as the liquid purification plant was concerned he had received an assurance from the manufacturers that it would be 100% efficient. It was largely a matter of mechanical safeguards. He was satisfied that liquid purification plant was a proposition and it had been installed in three works in the South-West of England.

Mr. **G. E. H. Keillor** (Airdrie) said that many of them would like to know how the liquid purification plant would operate after it was in production. It would mean a saving of labour. It was a type of plant bound to come more and more into the picture. Mr. Rea had a surplus of B.Th.U. as far as calorific value was concerned. They were not so fortunate in Scotland where they were always looking for extra B.Th.U. to enrich their gas.

Mr. **Rea** remarked that liquid purification plant saved labour, but the cost of power would be higher.

Mr. **J. C. Greig** (Dawsholm, Glasgow) said that coal gas at least should be in one stream. There might be some good reason for having water gas separated. That was even more so in Bath, where they had a comparatively small area. Mr. Rea proposed to mix two kinds of coke as regular practice when he got his new verticals. He intended to mix both vertical and horizontal cokes. He (the speaker) had had considerable experience with both chamber coke and continuous vertical coke and had found in certain cases that customers did not like mixed coke. This applied to the smaller consumer and particularly to bakers. He would like more information about the liquid purification plant. Mr. Rea had said he had certain guarantees and had spoken about mechanical safeguards. But they all knew how these things could sometimes go astray, and he still doubted if Mr. Rea would feel always easy in his mind about them. He would also like to know if Mr. Rea had been using good water for boiler feed.

Mr. **Rea** said that in his area river water was very hard, with a good deal of alluvial mud. The figure of 9d. per 1,000 gal. was their actual cost of softening water.

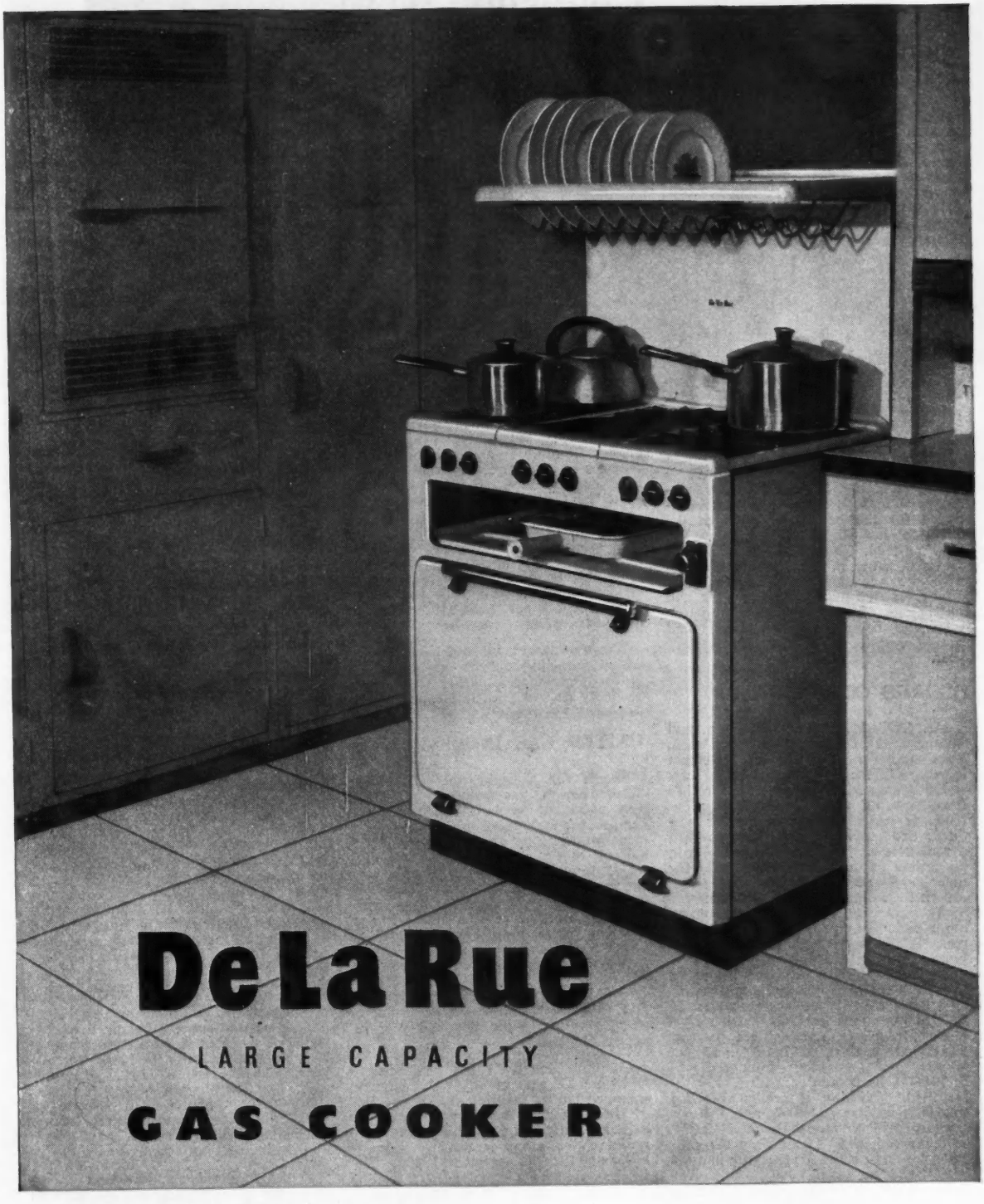
Mr. **J. M. Dow** (Paisley) suggested that there was an undue tendency to waste money on the construction of buildings which were ornamental. Was there no process steam used at Bath for power purposes, and what was the swelling index of the coal used?

Mr. **Rea** replied that Bath was a city of culture and of fine architecture, and their buildings must be in keeping and a credit to the city. They could not afford Bath stone, but had got a brick which resembled it. The swelling index of Somerset coal went up to nine. In Bath they were a long way from the coalfields and a long way from power. Their costs should not be compared with those in Scotland. They condensed all their steam from their prime movers.

LOW COST GAS

A NEW method of producing gas at low cost from cheap fuels, including low-grade coals and heavy fuel oil, was described in a paper presented to the Twelfth International Congress of Pure and Applied Chemistry in New York by Dr. Kurt Baum, of the Pan-European Industrials Plant Co., Paris. The gas could be made from a wide range of fuels starting with peat, lignite, brown coals and sub-bituminous coals; even fuels high in ash content. The high price of manufactured gas has been dictated in the past by that of the fuel used as raw material, and present methods of gasification are based on a high quality fuel.

By the new process, any carbonaceous matter, or even heavy fuel oil, is reacted in suspension with air or oxygen and steam in an incomplete combustion method, very similar to ordinary combustion in a pulverised fuel burner. The wide interest for such a process in France is based on new possibilities for the manufacture of cheap industrial heating gas, or the manufacture of synthetic gas for the chemical industry by the application of oxygen and steam.



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Company News

SOUTH AFRICAN LIGHTING

The annual report of the South African Lighting Association states that the balance of net revenue account, subject to audit, is £92, compared with £2,116 last year; after payment of tax the figure is nil against £100. For the previous year £1,000 was transferred to reserve but for the year under review £457 is taken from reserve. Dividend is maintained at 2½%, and the carry-forward is £2,373 against £3,005.

NICO

The trading profit of the Nico Light Engineering Co., Ltd., for the year ended March 31 last as compared with the previous year showed an increase from £35,461 to £37,583, and the Directors have decided to increase the dividend bonus to 7½%, making a total distribution of 17½%. A sum of £4,564 has been transferred to general reserve and a war damage payment of £1,436 received during the year has also been transferred, bringing the general reserve up to a total of £56,000. An employees' pension scheme has been introduced for the benefit of staffs at the Croydon and Birmingham works. Mr. R. E. Green, Chairman and Managing Director, says in his statement issued with the accounts, that despite many difficulties due mainly to shortages and restrictions of materials the Company's sales are being well maintained and should result in another satisfactory year.

GEORGE COHEN GROUP

Mr. Cyril M. Cohen, Chairman and Managing Director of George Cohen, Sons, and Co., Ltd., in his statement issued with the accounts for the year ended March 31, 1951, says the Group's manufacturing plants continued to extend the range and scope of their products, and orders on hand have reached a record level. To date there has been no falling off in the heavy demand for machinery, and the reconditioning shops are kept fully occupied. Supplies of high class equipment are becoming more difficult to procure, but the Company is redoubling its efforts both at home and abroad, to buy what is needed. The Group turnover amounted to £11,889,000 as compared with £9,618,000 for 1950, an increase of £2,271,000. Payments to outside suppliers for goods and services totalled £8,519,000, against £6,830,000, and net wages and salaries amounted to £2,194,000, as compared with £2,139,000 for 1950. Taxation of profits absorbed £526,000, against £223,000, and the net amount paid to stockholders £112,000, as compared with £104,000. Consolidated trading profits for the year jumped by £524,944 to £1,024,090. The dividend on the ordinary is raised from 20 to 23% for the year. Group current assets have increased from £4,901,954 to £5,106,101, while current liabilities have declined from £2,159,729 to £1,999,530. The bank overdraft shows a reduction of £431,281 to £222,228. Total assets stand at £6,612,877, against £6,360,124 a year ago.

BRITISH OXYGEN

The directors of the British Oxygen Company have declared an interim dividend on the ordinary stock of 8%, less income tax at 9s. 6d. in the £, on account of 1951. By reason of double taxation relief, the net United Kingdom rate of income tax payable by the company is estimated at 8s. 6d. and this is the rate to which any relief or repayment to a stockholder is limited. The dividend is payable on or after October 5. A similar interim payment was made for 1950, the final of 12% making 20% for that year.

SKEFKO BALL BEARING

Circulars have been issued to ordinary stockholders in the Skefko Ball Bearing Company concerning the offer of 400,000 5s. ordinary shares at 30s. in the proportion of one for eight held on September 17. Proceeds, estimated at £575,000, will finance building and re-organisation schemes to be completed within the next two years. Trading profits for the first eight months of the year have attained a level very close to the corresponding period of 1950. The balance of profit it is stated, will not differ very much from the figures shown for the previous year. Under dividend control standard dividend would appear to be 10.66d. free of income tax per stock unit, equivalent to 33.84% gross.

The new shares will not participate in the interim dividend in respect of the year to December 31, 1951, which would normally be payable in November.

UNITED GAS INDUSTRIES

Except for a slight and temporary check when the gas-producing companies were about to be nationalised in 1949, demand for the meters and similar equipment produced by United Gas Industries has in recent years been consistently high. In sympathy, trading profits have shown relatively little variation, remaining well above the £500,000 mark since 1947-48. For the year to March 31 last —which began promisingly with rising sales—results appear to have been nearer £600,000. The group profit, subject only to taxation, is returned £49,000 higher at £462,000, after providing for depreciation, directors' emoluments and other charges which in the previous year required £117,000.

Common though it is for a company to find the best part of any profit increase siphoned off by taxation, the experience of U.G.I. in this respect in the past year is particularly unpleasant. Net taxed profit of the group is actually a shade lower at £182,600, against £184,100. The result maintains adequate cover for the dividends which, as already known, are to be again 17% on the ordinary and 175% on the minute and very highly geared deferred capital. These rates have been in force since 1946-47 and are the standards for control purposes. Quoted around 51s. 3d. cum the final 12%, the ordinary £1 shares yield 6.8%. (From the *Financial Times* of August 30.)

POWELL DUFFRYN

The Directors of Powell Duffryn Ltd. announce that the annual general meeting will be held on October 10. The consolidated net profit for the year ended March 31, is £604,934 (previous year £647,073) after crediting transfer from taxation reserves £72,452 (£66,248) and after charging depreciation £310,516 (£232,661) and taxation £1,041,460 (£934,676). The Directors recommend a final Ordinary dividend of 5% actual, less tax (making with the interim dividend of 3% actual, paid on February 23, 8% for the year). The amount at the credit of the consolidated profit and loss appropriation account to be carried forward to 1951/52 is £2,295,234 (£2,222,714).

MUREX LIMITED

The thirty-second annual general meeting of Murex, Ltd., was held on September 19, at the Great Eastern Hotel, Liverpool Street, London, E.C., Mr. George P. Joseph (chairman of the company) presiding. The following is from the Chairman's circulated statement:

There has been a real and satisfactory improvement in the volume of our sales. We have spared no effort in recent years to expand exports and it is unfortunate that shortages of raw materials and prior demands at home have prevented us from meeting overseas' demands in full. The additional profits which accrued on a rising market, to a large extent fortuitously, are reflected in the substantial increase of over 100% in the consolidated trading profits of the year. A large part of the profits has been retained in the business to finance additional working capital, of which over £800,000 is represented by the increased value of stocks held at the year-end. Taxation at the higher rates introduced in the 1951 Budget is a heavy burden and our tax liabilities on the consolidated profits for the year are nearly £900,000. When the present emergency has passed, a marked fall in the current abnormal price levels of raw materials is likely and losses may well arise on a falling market. The directors have therefore set aside out of profits of the year £400,000 for such a contingency.

After making all necessary provisions and appropriations, the balance of profit available enabled a modest increase of 2½% in the ordinary dividend for the year, which becomes 12½%, compared with 10% which had been maintained since 1937. Consolidated reserves of £1,900,000 consist almost entirely of undistributed profits which have been ploughed back into the business.

If the Governments' dividend limitation proposals are carried through it is our intention to place in future to a special reserve the difference between what we will be permitted by statute to pay in dividends and what we would have paid had the Government not interfered with our freedom of action. The money so set aside would be invested in short-term securities.

AT A GAS WORKS IN THE MIDLANDS

PURIFIER INSTALLATIONS Complete in Every Detail

C. & W. WALKER, LTD., Donnington, Nr. Wellington, Shrops.

LONDON OFFICE: 70, VICTORIA STREET, S.W. 1. 'Phone: Victoria 5842. 'Grams: "Fortress," Sowest, London.

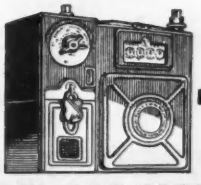
MOMENTOUS *Measures*

A GALLANT MEASURE No. 9

Sir Walter knew a thing or two,
(for 'baccy let us praise him),
He realised quite clearly that
to 'make it snappy' pays him.
A gallant, bold, ambitious bloke,
He stooped to conquer through his cloak.

Sir Walter Raleigh's bold and gallant gesture paved the way for his advancement among Queen Elizabeth's courtiers and enabled him to make important contributions to Elizabethan History—proving that advertisement is justified when one has the goods to offer.

We make no apology for boldly advertising the 'A & M' Optional Meter as a splendid modern measure for the Gas Industry.



THE "A & M" METER

A MODERN MEASURE for the Gas Industry

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INDUSTRIAL RUBBER HOSE

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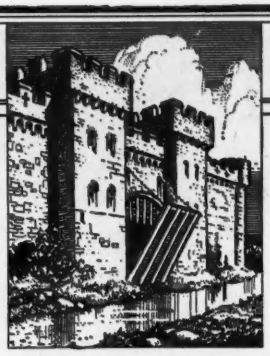
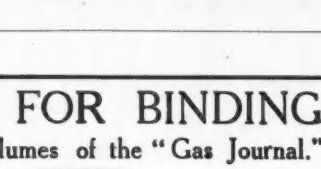
COMPRESSORS & EXHAUSTERS FOR AIR AND GAS.
See our Advertisement Next Week.
REAVELL & CO. LTD. IPSWICH.

CASES FOR BINDING
Quarterly Volumes of the "Gas Journal."
5/- each, post free
Walter King, Ltd., 11, Bolt Court, Fleet Street, London, E.C.4.

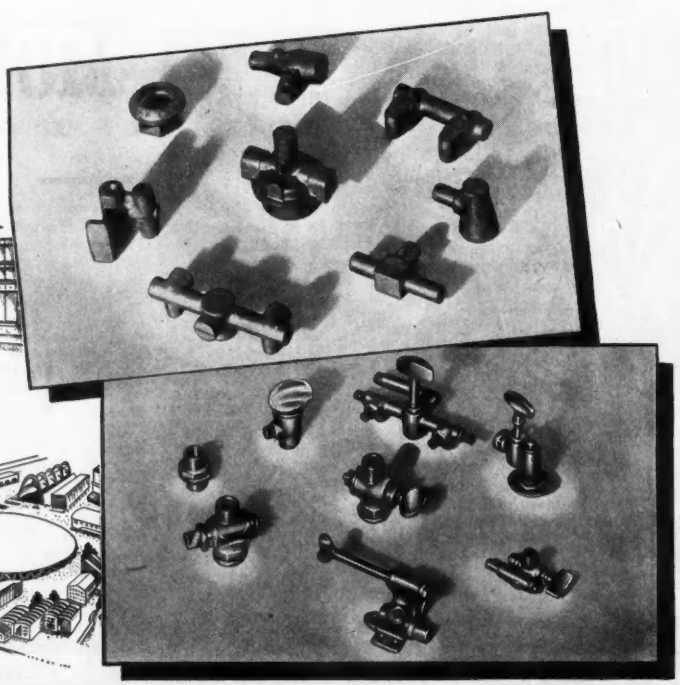


PROTECTION
GAUNTLET
GAUNTLET
WEATHER TESTED PAINTS
ARCHD H. HAMILTON & CO. LTD
27-37 BARDOWIE STREET POSSILPARK GLASGOW.N

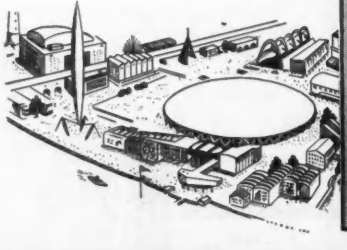
1751 —
Manufacturing Ornamental Brassware.



1851 —
Messenger Display at the Great Exhibition.



1951 —
200 Years of Industrial Service.



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PERCY ROAD, GREET, BIRMINGHAM, 11
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PUBLISHERS' NOTICE

The "Gas Journal" is published every Wednesday, price 1/-; by post 1/2d.

Subscription Rates : Home and Empire :- 52/- per annum ; Foreign :- 60/- per annum. (Both payable in advance.) A copy of the "Gas Journal" Calender & Directory is presented each year to continuous subscribers.

Classified Advertisements : All small classified advertisements are charged at 1/9 per line (approx. 7 words) - minimum charge 10/6. A Box Number address occupies 2 lines, and a further 6d. is charged towards cost of postage on replies. Copy must be received by first post on Monday to ensure insertion in that week's Journal.

Displayed Advertisements : Rates obtainable on application to the Business Manager. Change of copy for displayed spaces must be received 14 days prior to publication if proofs are required. Type area of inside pages 10" deep x 7" wide ; block screen 120.

BUSINESS MANAGER : S. T. CULLEN

MIDLANDS OFFICE : 10, Union Street, Birmingham.

NORTHERN MANAGER : W. Q. Foster, 33, St. Helens Road, Harrogate. 'Phone : Harrogate 84291.

WALTER KING, LTD., 11, Bolt Court, Fleet Street, London, E.C.4.

Telephone : CENtral 2236-7. Telegrams : Gasking, Fleet, London.

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SPECIALLY ACTIVATED OXIDE OF IRON
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"KLEENOFF"
THE COOKER CLEANER
Tins for Sale to Consumers. In Bulk for Works Use

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FOR BUILDING & REPAIRING FIREBRICK WORK ETC
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NU-SWIFT?
The World's Fastest Fire Extinguishers — for every Fire Risk
Pressure-operated by sealed CO_2 Charges
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Advice. Handbook, and Consultations free. 146a, Queen Victoria Street, London, E.C.4. Phone : City 6161.

APPOINTMENTS VACANT

SOUTH EASTERN GAS BOARD

SUSSEX DIVISION.

PORTSLADE WORKS—BRIGHTON.

JUNIOR DRAUGHTSMAN.

APPLICATIONS are invited for the above- mentioned position.

Preference will be given to applicants who have had previous drawing office experience in the Gas Industry or with Gas Works Plant Contractors and who possess or who are studying for the I.G.E. Ordinary Grade Certificate in Gas Engineering or the equivalent in Mechanical Engineering.

The successful candidate will be required to prepare Works drawings and also to assist, when necessary, in the keeping of Works Production Records.

The commencing salary will be according to qualifications and experience and will be within Grade IV of the National Salary Scales (Provincial 'A') in respect of Administrative, Professional and Technical Staffs (£275-£460 per annum).

Applications in writing (quoting reference V.10/184) giving age, present occupation, experience and qualifications, etc., should reach the undersigned not later than fourteen days after the publication of this notice.

R. J. McCRAE,
Personnel Manager.

Katharine Street,
Croydon.

NORTHERN GAS BOARD

DARLINGTON DIVISION.

CENTRAL SUB-DIVISION.

SHIFT ENGINEER.

APPLICATIONS are invited for the above appointment at the Darlington Unit.

The salary attached to the post will be related to the qualifications and experience of applicants, who must have had a sound practical experience in the control and operation of Vertical Retorts, Carburetted Water Gas Plant and Ancillary Gasworks Plant.

Applications, giving details as to salary required, age, training, qualifications and experience, should be forwarded not later than September 29, to Charles Hindle, Esq., Engineer & Manager, Darlington Unit, Gas Offices, John Street, Darlington.

F. WILSON,
Divisional General Manager.

EASTERN GAS BOARD

(NORWICH DIVISION).

GAS FITTER required for duty with the Fakenham Undertaking of the King's Lynn Group. Pay and conditions in accordance with National Joint Industrial Council, Provincial "B" Rates. Single man preferred owing to housing position.

Applications with names of two referees to be sent to L. C. B. Williams, Group Manager, Gas Works, Wisbech Road, King's Lynn, within fourteen days of the appearance of this advertisement.

SOUTH WESTERN GAS BOARD

BATH SUB-DIVISION.

TECHNICAL ASSISTANT—DISTRIBUTION.

APPLICATIONS are invited for the above post.

The commencing salary will be within the range of A.P.T. Grade V, Provincial A (£425-£505) according to experience and qualifications.

Applicants should have a sound theoretical knowledge of gas supply, on both the mains and fittings side, and should have achieved a good standard in mathematics. Some Drawing Office experience would be an advantage.

Duties will comprise technical work generally within the Department and include acting as Clerk of Works on occasion, the execution of district pressure surveys, and the preparation of calculations relating to schemes under consideration.

The successful applicant will be required to pass a medical examination and to subscribe to such scheme of superannuation as the Board may adopt.

Applications, stating age, qualifications, training and experience and giving the names of two referees, should be forwarded to the undersigned not later than September 28, 1951.

C. BATEMAN,
Manager.

18-19, Old Bond Street,
Bath.

NORTH WESTERN GAS BOARD

BURNLEY-COLNE GROUP.

ENGINEERING DRAUGHTSMAN.

APPLICATIONS are invited for the position of ENGINEERING DRAUGHTSMAN at Group Headquarters, at a salary within Grade A.P.T. VII (£500-£580 per annum).

Candidates should have experience in one or more of the following:—mechanical engineering, design and layout of pipework, building construction or electrical engineering.

Experience and training in a gas undertaking or with a firm of gas engineering contractors would be an advantage.

The successful applicant may be required to pass a medical examination and to subscribe to such superannuation scheme as the Board may adopt.

Applications, appropriately endorsed, giving personal details, particulars of training, qualifications and experience, together with the names and addresses of two referees, should reach the General Manager, North Western Gas Board (Burnley-Colne Group), Parker Lane, Burnley, not later than fourteen days after publication of this advertisement.

(*Classified advertisements continued on Supplement* 4)

APPOINTMENTS VACANT (*ctd.*)

SCOTTISH GAS BOARD

PERTH GROUP.

OFFICE MANAGER—

ALLOA/STIRLING SUB-GROUP.

APPLICATIONS are invited for the above post at the Sub-Group Office at Alloa.

The Salary will be in accordance with Grade VIII-IX of the Salary Scales of the N.J.C. for Gas Staffs (£540 rising to £670).

Applicants should possess a professional qualification and have experience of up-to-date mechanised office procedure including stock control, costing systems, etc.

The terms and conditions will be those agreed by the National Joint Council for Gas Staffs. The successful applicant will be required to pass a medical examination and to subscribe to any superannuation scheme that the Board may subsequently adopt.

Applications stating age, particulars of education, qualifications, training and experience, and giving the names of two referees, should be addressed to Mr. W. Nicol Baird, Group Manager, Scottish Gas Board, Perth Group, Gas Works, Friarton, Perth, to reach him not later than Monday, October 8, 1951.

SCOTTISH GAS BOARD

FIFE GROUP.

KIRKCALDY DISTRICT.

DISTRIBUTION SUPERINTENDENT.

APPLICATIONS are invited for the above appointment at a salary in accordance with A.P.T. Grade V, *i.e.*, £425 rising to £505 per annum.

Candidates should have experience in High and Low Pressure Distribution and Industrial Gas work, and be capable of planning, estimating and carrying out distribution schemes. Possession of the Higher Grade Certificate of the Institution of Gas Engineers in Gas Engineering (Supply) will be an advantage.

The successful applicant may be required to pass a medical examination, and to subscribe to such scheme of superannuation as the Board may introduce in the future.

Applications endorsed 'Distribution Superintendent,' stating age, qualifications, and experience, and accompanied by a *copy* of each of three recent Testimonials, should be lodged with the undersigned on or before Monday, October 15, 1951.

JOHN H. FULTON,
District Manager.

Scottish Gas Board,
Fife Group, Kirkcaldy District,
28, Links Street,
Kirkcaldy.
September 18, 1951.

SCOTTISH GAS BOARD

NORTHERN DIVISION.

ABERDEEN DISTRICT.

APPOINTMENT OF
DISTRIBUTION ENGINEER.

APPLICATIONS are invited from suitably qualified persons for the post of DISTRIBUTION ENGINEER in the Aberdeen District Undertaking.

Applicants must be Corporate Members of the Institution of Gas Engineers or of an Engineering Institution of similar status and experienced in the design and carrying out of Gas distribution work, the organisation of Stores and Workshops, and the control of staff and workmen.

The candidate selected will be required under the District Manager to assume full responsibility for the day to day control of the Distribution Department of the Gas Undertaking.

The salary scale for the post is in accordance with the Board's scale of salaries for adult Administrative, Professional and Technical Staffs, viz. Provincial 'A' Grade XII £695-£820 per annum with initial placing in accordance with the selected candidate's qualifications and experience.

It is anticipated that a new house to rent may shortly be available.

Applications giving full particulars of age, qualifications and experience, together with *copies* of three recent Testimonials, should be lodged with the undersigned not later than 12.0 noon on Thursday, October 18, 1951.

H. S. MILNE,
Divisional Controller.

50, Cotton Street,
Aberdeen.
September 20, 1951.

SCOTTISH GAS BOARD

NORTHERN DIVISION—

INVERNESS DISTRICT.

ASSISTANT MANAGER.

APPLICATIONS are invited for the position of ASSISTANT MANAGER of the above Undertaking.

Candidates should possess the Higher Grade Certificate (Manufacture) of the Institution of Gas Engineers and have experience of Vertical Retorts and control of works plant generally.

The Salary applicable to the post is Grade VIII (Provincial 'A') of the National Salary Scales—£540-£620 per annum. Placing in the scale will be in accordance with qualifications and experience.

Candidates should state if they meantime hold a superannuated position. The successful candidate may be required to pass a medical examination.

Applications giving particulars of training, experience and qualifications, together with *copies* of two testimonials should be addressed to the undersigned to arrive not later than Friday, October 12, 1951.

JOHN FORD,
District Manager.

Gas Works,
Manse Place,
Inverness.

WEST MIDLANDS GAS BOARD

WOLVERHAMPTON & DISTRICT DIVISION.

SENIOR ACCOUNTANCY ASSISTANT.

DUDLEY DISTRICT.

APPLICATIONS are invited for the above position at the District Office, Dudley.

The salary for the position will be not less than £645 per annum, rising by annual increments to a maximum of £770 in accordance with Grade XI of the salary scales of the National Joint Council for Gas Staffs.

The successful candidate will be responsible for the accountancy and costing work of the district and the control of the clerical staff.

Experience in punched card methods and the possession of a professional qualification will be advantageous.

The appointment will be subject to such superannuation regulations as the Board may, in due course, adopt, and any existing superannuation rights in the gas industry would be preserved. The successful candidate may be required to pass a medical examination.

Applications stating age, qualifications and experience, giving the names of two referees, should be addressed to Mr. F. C. Briggs, Divisional Manager, West Midlands Gas Board, Wolverhampton and District Division, Kensington House, Bath Street, Dudley, Worcs., to reach him not later than fourteen days after the appearance of this advertisement.

F. H. CURETON,
Secretary.

WEST MIDLANDS GAS BOARD

WALSALL AND DISTRICT DIVISION.

DRAUGHTSMAN—WALSALL DISTRICT.

APPLICATIONS are invited from suitably qualified persons for the position as DRAUGHTSMAN at the Pleck Works, Walsall District.

The salary for the post will be not less than £425 per annum on commencement, rising by annual increments to a maximum of £505 per annum, in accordance with Grade V of the salary scales of the National Joint Council for Gas Staffs.

Applicants should possess a sound knowledge of structural and general engineering work.

The successful applicant may be required to pass a medical examination and to subscribe to such scheme of superannuation as the Board may, in due course, adopt. Any existing superannuation rights in the Gas Industry would be maintained.

Applications giving personal details, particulars of training, qualifications and experience, and the names of two referees, should be addressed to Mr. E. Hardiker, Divisional Manager, West Midlands Gas Board, Walsall & District Division, Walsall Factory Estate, Tame Bridge, West Bromwich Road, Walsall, to reach him not later than fourteen days after the appearance of this advertisement.

F. H. CURETON,
Secretary.

EAST MIDLANDS GAS BOARD

LEICESTER AND NORTHANTS DIVISION.

LEICESTERSHIRE AND RUTLAND
SUB-DIVISION.

SENIOR HOME SERVICE ADVISER.

APPLICATIONS are invited for the position of SENIOR HOME SERVICE ADVISER for the Leicestershire and Rutland Sub-Division. The duties will involve responsibility for organising the activities of the Home Service Section and for co-ordinating the work of the Home Service Advisers, based on the Leicester Undertaking, within the Sub-Division.

Candidates, who must hold a recognised diploma in cookery and domestic science and should have had practical experience in those subjects, must be capable of demonstrating and promoting the use of gas appliances, and in advising consumers on kitchen and other domestic problems involving the use of gas. The salary will be within the range £400/£464 per annum according to qualifications and experience.

The post is superannuable, and the successful candidate may be required to undergo a medical examination.

Applications stating age, qualifications and experience, and giving full particulars of training, together with the names of two referees, should be addressed to the undersigned to be received not later than October 6, 1951.

C. C. WOOD,
Divisional General Manager.

Millstone Lane,
Leicester.
September 14, 1951.

EAST MIDLANDS GAS BOARD

LEICESTER & NORTHANTS. DIVISION.

CHIEF DRAUGHTSMAN.

APPLICATIONS are invited for the post of CHIEF DRAUGHTSMAN in the Divisional Drawing Office at Leicester. Applicants must have had practical experience in the design and layout of Gasworks plant and distribution machinery. They must also possess a general knowledge of constructional steelwork and building design.

The salary will be within the range of Grade A.P.T. X (minimum £620, maximum £720) of the National Salary Scales for Gas Staffs according to qualifications and experience.

The post is superannuable and the successful candidate may be required to undergo a medical examination.

Applications stating age, qualifications and experience, and giving the names of two referees, should be addressed to the undersigned to be received not later than October 13, 1951.

C. C. WOOD,
Divisional General Manager.

Millstone Lane,
Leicester.
September 20, 1951.

SOUTH WESTERN GAS BOARD

BATH SUB-DIVISION.

ASSISTANT DISTRIBUTION ENGINEER.

APPLICATIONS are invited for the above post. The successful applicant will be responsible to the Sub-Divisional Distribution Engineer for all aspects of Distribution Engineering, including the control of outside staff and the preparation of schemes for the modification and extension of the existing mains network. A sound knowledge of H.P. work is necessary, together with a comprehensive practical experience in all Departments of Distribution and Supply.

Applicants should possess the Higher Grade Certificate of the Institution of Gas Engineers in Gas Engineering (Supply) or equivalent qualifications.

The commencing salary will be within the range of A.P.T. Grade XII, Prov. A. (£695-£820) according to experience and qualifications.

The successful applicant will be required to pass a medical examination and to subscribe to such scheme of superannuation as the Board may adopt.

Applications, stating age, qualifications, training and experience, and giving the names of two referees, should be forwarded to the undersigned not later than October 5, 1951.

C. BATEMAN,
Manager.

18-19, Old Bond Street,
Bath.

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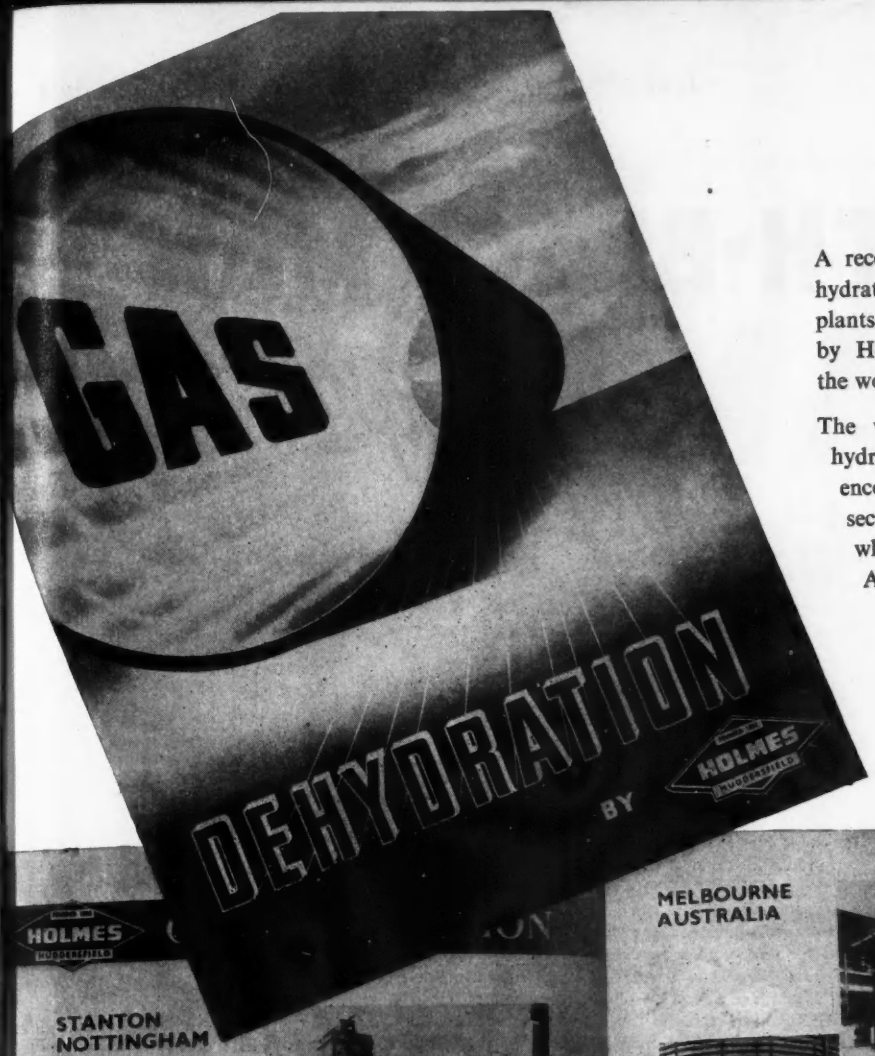
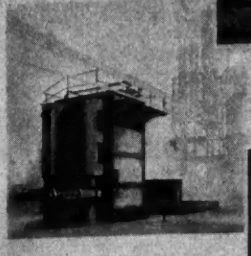


A recent publication on Gas Dehydration illustrates some of the plants designed and manufactured by Holmes, operating throughout the world.

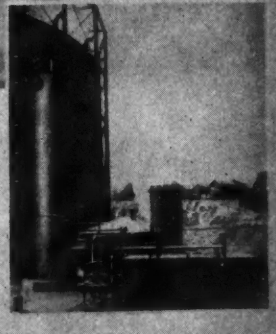
The wide adoption of Gas Dehydration by the Industry has encouraged the printing of this second book (Brochure No. 38) which is available to Gas Authorities on Request.

HOLMES HUDDERSFIELD

STANTON NOTTINGHAM

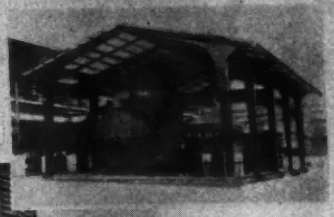


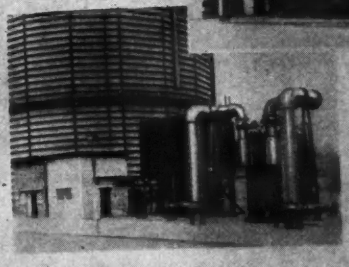
LEA BRIDGE LONDON



SCRANTON AMERICA

MELBOURNE AUSTRALIA





ROTHERHAM YORKSHIRE

densation to occur in the underground pipes, while at other seasons there may be the reverse tendency, water being absorbed by the gas from the deposits which have occurred when the ground was relatively colder. These are the conditions under which dust may be produced, by the drying out of corrosion products, and surprisingly moderate gas velocities are sufficient to set up movement of the dust. Generally speaking, the gas velocities in the street mains are higher than those in the service pipes which are taken off, so that there is a tendency for dust which is on the move to be partly arrested at each individual service connection. It will also be seen that water vapour which has travelled from the works, or has been picked up en route, may again be condensed in the household pipes and fittings, and in this manner the gas meter itself may be found to suffer considerably. Whatever may be the excellence of construction of dry gas meters, and they have a high reputation for standing up to adverse conditions, the total cost of meter maintenance can be materially reduced by preventing such water condensation.

THROUGHOUT THE WORLD

W. C. HOLMES & Co. Ltd.

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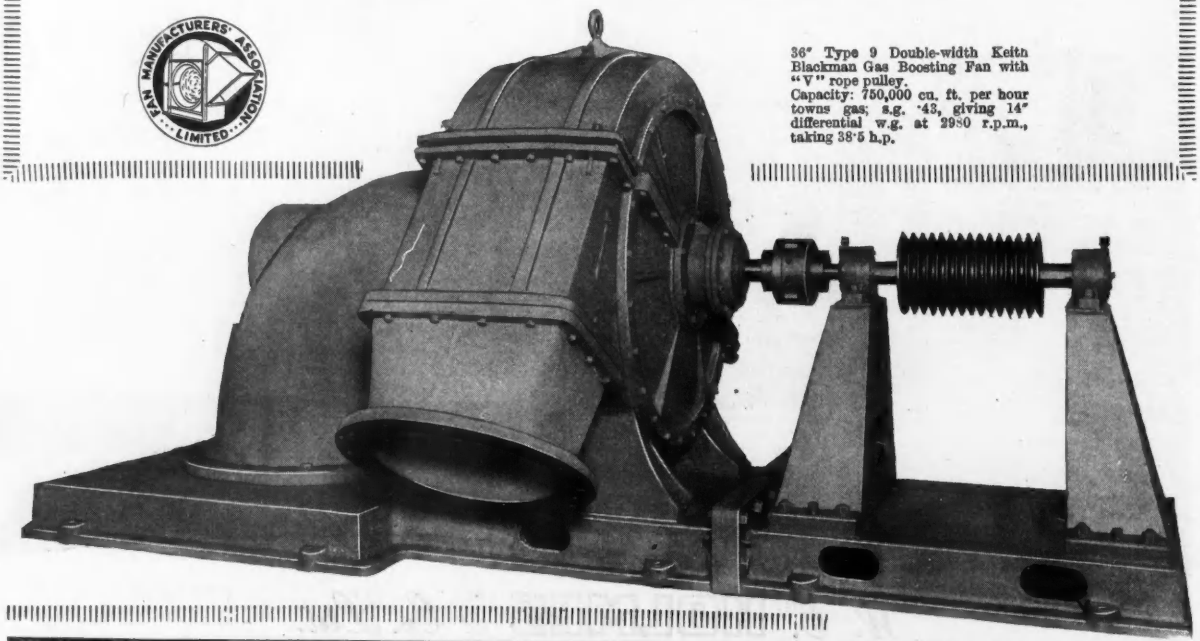

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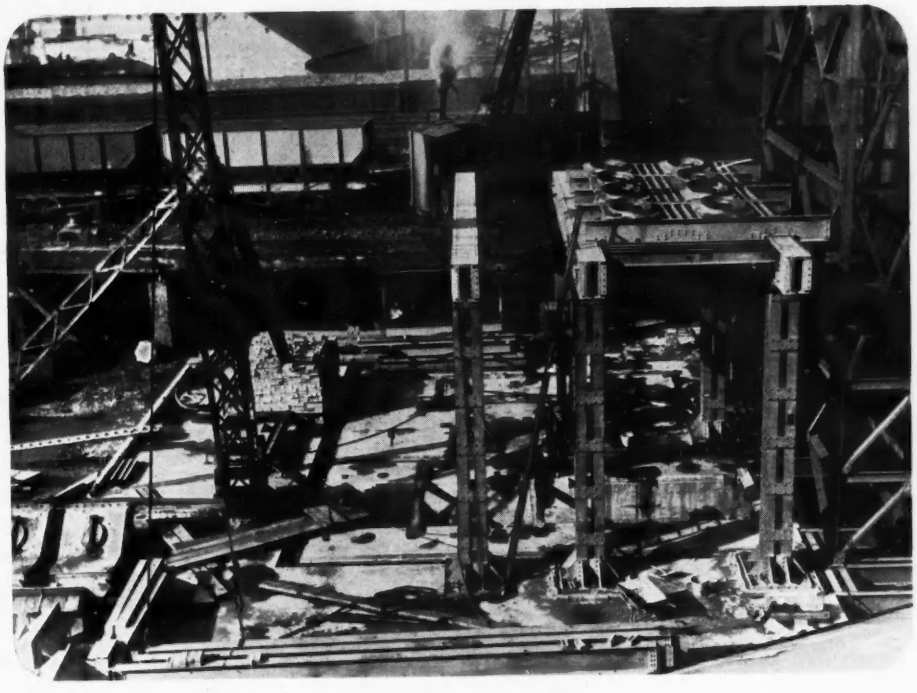

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